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55

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German Self-Propelled Weapons

by Peter Chamberlain and H. L. Doyle



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10.5cm (f) auf PzKpfw
Mk VI (e)
*A small number of captured
British light tanks of the
Mk VI series were con-
verted as mobile mounts
for the French 105mm gun.
(Bundesarchiv Koblenz)*

Illustrated Summary of German Self-Propelled Weapons 1939–1945

by Peter Chamberlain and Hilary L. Doyle

INTRODUCTION

EVEN before the outbreak of the Second World War, German Panzer experts had called for the introduction of self-propelled guns to accompany the Panzer Divisions then in the process of being formed. These demands, of course, referred primarily to self-propelled carriages for the field guns of the artillery regiments which would support the main fighting units, the tanks, in both attack and defence. However, due to the heavy production requirements for tanks and the limited war effort during the period from 1939 to 1941, plans to produce self-propelled artillery were neglected to a great extent and only a few attempts were made to introduce mobile guns.

Events in Russia during the latter part of 1941 forced an unforeseen development—the hurried introduction of large numbers of improvised self-propelled anti-tank guns. The carriages used were converted from the now obsolete light tanks which constituted so much of the strength of the Panzer Divisions and occupied so much space on the production lines of numerous German tank factories. These self-propelled guns were not the carefully designed weapons which had been urged before the war, but were instead a panic attempt to make up for the very low number of medium tanks available and even the inferiority of these same medium tanks. Such make-shift equipments were not the answer to the problems, and field units soon complained and demanded better tanks and tank destroyers. However, production was continued until the end of the war by the utilisation of otherwise useless stocks of captured foreign tank chassis and guns; such production being justified on the grounds that

the mobility of these anti-tank guns was worthwhile during the many defensive battles that were the order of the day. Fortunately, a true anti-tank weapon became available through the up-gunning of the infantry assault gun or Sturmgeschütz, and by its more developed successor the Jagdpanzer. Heavily armed and armoured these low vehicles were ideal for defensive warfare and proved very successful, so much so that in the final years of the war far more of this type of vehicle were produced than tanks.

Meanwhile, the much neglected mobile artillery was provided by using a proportion of the already mentioned obsolete light tank chassis. Again the improvised nature of these self-propelled guns caused difficulties, and improvements were requested by artillery units in the front line. This led to the interesting development of the Waffenträger. Basically it was hoped to produce a gun with all-round traverse which could be dismounted from its self-propelled carriage when required. Several advanced projects were not finalised due to the pressure on German industry as the war situation deteriorated.

A notable exception in this story were the anti-aircraft guns which were given self-propelled carriages of a semi-tracked type from the start of the war. However, the development of a fully tracked and armoured anti-aircraft mounting was continually left over and this problem was only tackled in the last years of the war when Allied air power began to cripple the mobile formations of the German Army.

There were a vast number of different types of self-propelled gun and these can be classified either by the carriage or by the type of weapon. As the prime purpose for building all these self-propelled guns was to mobilise

a specific weapon, any and every type of chassis could be and was used.

For this reason the authors have divided this Summary into sections according to the type of weapon used, ie. Anti-Tank (Pak), Assault Gun (StuG), and so forth, and then they have catalogued the equipments within these sections in chronological order by the calibre of the gun.

Reference to the glossary of German terms will explain the full meaning of any of the vehicle designations given in the picture captions.

This Summary is the first fully comprehensive coverage of all known German operational, improvised and experimental self-propelled weapons to be mounted on wheeled, tracked or semi-tracked vehicles during the period from 1939 to 1945 and the authors would like to thank the following individuals for the assistance they have given ie:

Col. R. J. Icks, J. de Voss, Masami Tokoi, J. Milsom, R. Hunnicutt, W. Spielberger. Grateful acknowledgements also to Derek Mayne of the Imperial War Museum and to Dr Haupt of the Bundesarchiv Koblenz.

GLOSSARY OF GERMAN TERMS USED IN THIS SUMMARY

Abbreviation	Full Term	English Translation
	Auf	Upon, on
Ausf.	Ausführung	Model, Mark
	Bis	To
(f)	Franzoesisch	French
Fgst	Fahrgestell	Chassis
FH	Feldhaubitze	Field Howitzer
FK	Feldkanone	Field Gun
Flak	Fliegerabwehrkanone	Anti-Aircraft Gun
	Flakpanzer	Anti-Aircraft tank
	Frueher	Formerly
	Fuer	For
	Geraet	Weapon
gcp	Gepanzert	Armoured
gl	Gleiskette	Track(ed)
GrW	Granatewerfer	Mortar
GW	Geschuetzwagen	Gun Motor Carriage
Haub	Haubitze	Howitzer
I	Infanterie	Infantry
IG	Infanteriegeschuetz	Infantry Gun
JgdPz	Jagdpanzer	Tank Hunter
Kwk	Kampfwagenkanone	Tank Gun
le	Leicht	Light
leFH	leichte Feldhaubitze	Light Field Howitzer
Lkw	Lustkraftwagen	Lorry, Truck
m	Mittler	Medium
MG	Maschinengewehr	Machine Gun
	Mit	With
Mrs	Moerser	Heavy Mortar/Howitzer
NbW	Nebelwerfer	Chemical/Smoke Projector
(O)	Oesterreichisch	Austrian
	Oder	Or/Alternatively
Pak	Panzerabwehrkanone	Anti-Tank Gun
Pjk	Panzerjaegerkanone	Anti-Tank gun adapted for use in Tank Hunter vehicles
Pz	Panzer	Tank
PzB	Panzerbüchse	Small Anti-Tank Gun with tapered bore
PzH	Panzerhaubitze	Howitzer adapted for fitting in armoured vehicles
PzJaeg	Panzerjaeger	Tank Destroyer/Fighter
PzKpfw	Panzerkampfwagen	Battle Tank
PzSpWg	Panzerspähwagen	Armoured Reconnaissance Car
(r)	Russisch	Russian
Raup	Raupe	Caterpillar Track
RaupFzg	Raupenfahrzeug	Self-Propelled full tracked vehicle
RSO	Raupen Schlepper Ost	Tracked Carrier East
RW	Raketenwerfer	Rocket Projector
s	Schwer	Heavy
Saukopf	Saukopfblende	Bears Head/Cast gun mantlet
SdKfz	Sonderkraftfahrzeug	Special Purpose Motor Vehicle
SdFgst	Sonderfahrgestell	Purpose built chassis
sFH	Schwere Feldhaubitze	Heavy Field howitzer
Sf(Sfl)	Selbstfahrlafette	Self-Propelled Carriage
slG	Schwere Infanteriegeschütz	Heavy Infantry Gun
sPzSpWg	Schwere Panzerspähwagen	Heavy Armoured Reconnaissance Car
SPW	Schützenpanzerwagen	Armoured Infantry Vehicle
StuG	Sturmgeschuetz	Assault Gun
StuH	Sturmhaubitze	Assault Howitzer
StuK	Sturmkanone	Assault cannon
StuMrs	Sturmmoerser	Assault Mortar
(t)	Tschechoslowakisch	Czechoslovakian
	Und	And
	Vierling	Quadruple
VK	Voll Ketten/ Versuchskonstruktion	Fully tracked/Experimental prototype vehicle
	Waffentraeger	Weapons Carrier/Transporter
Werf	Werfer	Projector
Zgkw	Zugkraftwagen	Prime Mover/Semi-Tracked Vehicle
	Zwilling	Twin Dual

Assault Guns (Sturmgeschuetz)

From experience gained during World War I, the German Army requested an armoured mobile gun able to advance with the infantry and destroy local strong points where supporting artillery was not available or capable of doing this task. The design eventually adopted was

that of a turretless tank mounting a low velocity gun in the front hull.

The turret was replaced by a squat superstructure, and a short barrelled 7.5cm KwK L/24 gun was mounted low in the hull front, the gun having a limited traverse.



Gepanzerte Selbstfahrlafette fuer Sturmgeschuetz 7.5cm Kanone Ausf. A SdKfz 142 or Sturmgeschuetz III Ausf. A
Based on the Panzerkampfwagen III Ausf. E, this was the first of the series to go into production, during 1940. Crew 4. Weight 19.5 tons.



Gepanzerte Selbstfahrlafette fuer Sturmgeschuetz 7.5cm Kanone Ausf. B, C and D SdKfz 142 or Sturmgeschuetz III, Ausf. B bis D
Produced from 1941 these three models were basically similar to StuG Ausf. A. There was little external difference between these models except for variations in the chassis, Ausf. F, G and H respectively. Crew 4. Weight 22 tons.



Sturmgeschuetz III, Ausf. E SdKfz 142
Produced in 1942, this was the last model to be armed with the short barrelled 7.5cm KwK L/24. Though similar to the previous models, this vehicle was fitted with an additional armoured pannier on the right side to carry extra radio equipment when in use as a Zugführerwagen (Unit Commander's vehicle).



7.5cm Sturmgeschuetz 40, Ausf. F SdKfz 142/1 or Sturmgeschuetz III Ausf. F
Early in 1942 the first StuG models with a long barrel 7.5cm StuK 40 L/43 were introduced. This was a development of the KwK 40 tank gun adapted for use in the assault type of vehicle. Based on a chassis similar to that of the StuG III Ausf. E, this vehicle had a modified superstructure fitted with an electric fan on top to ventilate the fighting compartment. Crew 4. Weight 21.6 tons.



7.5cm Sturmgeschuetz 40 Ausf. F/8
Only a small series of the StuG III Ausf. F were armed with the L/43 gun. The Ausf. F/8 was then fitted with a longer gun, the 7.5cm Sturmkanone (StuK) 40 L/48.



7.5cm Sturmgeschuetz 40 Ausf. G SdKfz 142/1 or StuG III Ausf. G fuer StuK 40 L/48
This model appeared at the end of 1942 and was based on the Panzerkampfwagen III Ausf. J. Again various changes had taken place. The longer gun, the Sturmkanone 40, was fitted and the nose frontal armour increased. The roof of the superstructure was equipped with a circular commander's cupola, with seven episcopes—previously the commander had had a fixed hatch through which the artillery's periscope projected. Also on the roof was a small armour shield for use with the machine gun. Later vehicles were fitted with armoured skirting and treated with Zinmerit (Anti-magnetic grenade plaster). Crew 4. Weight 23.9 tons.



7.5cm Sturmgeschütz 40 Ausf. G (Saufkopf) SdKfz 142/1

This was the final production version of the Sturmgeschütz III and was similar to the Ausf. G, but it had heavier armour and a cast gun mantlet called a Saukopfblende or Saukopf (Pig's Head). Final production vehicles were equipped with a remote controlled machine gun on the turret roof. Crew 4. Weight 24.5 tons. (Bundesarchiv, Koblenz)



Sturmgeschütz IV L/48 (7.5cm StuK 40) SdKfz 163 or StuG IV fuer 7.5cm StuK 40

Produced from 1943, this equipment consisted of the 7.5cm StuK 40 mounted on the chassis of the Panzerkampfwagen IV Ausf. H or J. The superstructure was modified from that of the StuG III Ausf. G, late model with Saukopf mantlet. Armour protecting was increased by the addition of slabs of concrete six inches thick attached to the front plate and roof over the driver's compartment.

Late models were equipped with a remote-controlled machine gun on the roof. Crew 4. Weight 23 tons.



10.5cm Feldhaubitze 42 SdKfz 142/2 or Sturmhaubitze 42 Ausf. F

With the adoption of the long L/43 7.5cm gun in place of the short 7.5cm low velocity gun on the StuG III models there remained a limited requirement for howitzer-armed vehicles for the close support role. As developed, this close support weapon had the usual characteristics of the StuG but was confined to a purely anti-personnel role, firing high explosive and not armour-piercing ammunition as did the up-gunned StuG models. Produced in 1942, the first of the assault howitzer vehicles were armed with the 10.5cm le FH 18, a light field howitzer adapted for use in the StuG. Identical to Sturmgeschütz 40 Ausf. F, only a few of these vehicles were built. Crew 4. Weight 23 tons.



Late production model above showing remote-controlled machine gun on roof.



10.5cm Sturmhaubitze 42 Ausf. G, SdKfz 142/2 or Sturmgeschütz III mit 10.5cm StuH 42 L/28 3 or StuG III fuer 10.5cm StuH 42

This equipment with respect to the chassis and superstructure was identical to the Sturmgeschütz 40, but it was armed with the 10.5cm Sturmhaubitze 42 L/28 (Assault Howitzer) that had been adopted to this role. Late production models had no muzzle brakes and were fitted with remote-controlled machine guns on the roof. Some vehicles in this series were fitted with a modified version of the cast gun mantlet Saukopf. Crew 4. Weight 24 tons.



10.5cm Sturmhaubitze 42 Ausf. G without muzzle brake. Equipped with armour skirting.



10.5cm Sturmhaubitze 42 Ausf. G with Saukopf.



Sturmpz 43 or Sturmpanzer IV Brummbaer or Sturmhaubitze 43 L/12 auf Fgst PzKpfw IV (Sf) SdKfz 166

Designed as a heavy armoured assault vehicle this equipment was the final development of the 15cm sIG 33 assault gun carriages. Based on the Panzerkampfwagen IV chassis models F, G, H and J this version was equipped with the 15cm Sturmhaubitze L/12 that had been developed from the sIG 33. This short 15cm howitzer was ball-mounted in a heavily armoured box-type superstructure with a frontal thickness of 100mm.

Variations of this equipment existed. In early vehicles the driver had direct vision through a visor of the vertical sliding shutter type arranged in the front plate of the superstructure, this was as used on the Pz VI Tiger tank. Mid-production machines were fitted with a built-up cab with no visor, the driver using a fixed periscope in the cab roof. The late production version carried a ball-mounted machine gun high up on the left side of the front superstructure plate. The armour arrangement of the front and rear of the superstructure was also changed, the front now consisting of two plates instead of one. 313 machines were built. Crew 5. Weight 28.2 tons.



Mid-production Brummbaer showing driver's housing with periscope.



Late production Brummbaer with front ball-mounted machine gun, and new type of commander's cupola equipped with anti-aircraft machine gun.



38cm RW 61 auf Sturmtiger or Sturmpanzer 38cm, RW 61, Sturmtiger

This equipment was designed at the request of the army for a self-propelled 21cm howitzer, capable of following the advancing troops and able to engage difficult targets with high angle fire.

As no suitable howitzer of 21cm calibre was available however, it was decided to use the 38cm Raketenwerfer 61 L/54, a weapon that had originally been developed as a naval anti-submarine projector.

The mobile mount for this breech loading rocket projector was the chassis of the PzKpfw VI Tiger E with the normal superstructure and turret replaced by a heavy rectangular superstructure of the type used on the Panzerjaeger SP equipments, the projector being mounted offset to the right of centre in the front plate. A small crane for loading the rocket projectiles through a hatch in the rear roof plate into the interior of the vehicle was mounted on the right rear corner of the superstructure. Racks were provided on either side of the fighting compartment to accommodate 12 rounds, while an additional round could be carried in the projector tube.

This vehicle entered limited production during 1944, a total of 10 Tigers being converted. Crew 5. Weight 68 tons.

Close Support 7,5cm KwK L/24

As the short barrelled 7,5cm gun became available, being no longer required for use with the Panzerkampfwagen IV and Sturmgeschuetz vehicles, it was used for mounting in armoured cars and armoured personnel carriers, adapting these vehicles to the close support role. It was first used on the SdKfz 251/9 armoured personnel carrier and the SdKfz 233 eight-wheeled armoured car, both mountings requiring structural modifications of the basic vehicle.

The gun was mounted on a low pedestal, and the right half of the driver's visor plate was cut away to make

room for the barrel. A small sloping armour plate was arranged over the gun to provide protection for the gun crew. Traverse of the gun was limited, being 12 degrees each way, with a maximum elevation of 20 degrees. During mid-1943 a new mounting was developed that enabled the gun to be fixed on top of any suitable structure with only minor alterations. This new gun mounting was used for the armoured personnel carrier, SdKfz 250, similar equipment being used with the SdKfz 234 eight-wheeled armoured car.



Mittlerer Schuetzenpanzerwagen (7,5cm KwK L/24) SdKfz 251/9
Armoured Personnel Carrier SdKfz 251 with 7,5cm KwK L/24 in the early recessed gun mounting. Crew 3. Weight 8.53 tons.



Front view of the SdKfz 251/9. Dial sight and commander's periscope are shown behind the gun.

SdKfz 251/9 with 7,5cm gun in new mounting



Leichter Schuetzenpanzerwagen mit 7,5cm KwK L/24 SdKfz 250/8
Light Personnel Carrier SdKfz 250 equipped with the short 7,5cm gun in new mounting. An MG 42 machine gun was mounted on the gun to give co-axial fire and also to act as a ranging gun for the latter. Crew 3. Weight 6 tons.



Panzerspähwagen (SdKfz 233) mit 7,5cm StuK L/24
or **Schwerer Panzerspähwagen (sPzSpWg) (7,5cm L/24)**
SdKfz 233, 8-Rad
Heavy eight-wheeled armoured car SdKfz 233 with early cut-away gun mounting. Crew 3. Weight 7.55 tons.



SdKfz 233 with modified recessed gun mounting.



Schwerer Panzerspähwagen (sPzSpWg) (7,5cm L/24)
SdKfz 234/3, 8-Rad
or Panzerspähwagen (SdKfz 234/3) mit 7,5cm StuK L/24
 Improved model of the eight-wheeled armoured car series, SdKfz 234 equipped with the 7.5cm L/24 gun in new mounting. Crew 4. Weight 9.7 tons.

SdKfz 234/3. View of the gun compartment.



Heavy Infantry Artillery (Schweres Infanteriegeschuetz 33)

Prior to the appearance of the heavy armoured assault howitzers, a self-propelled lightly armoured howitzer was improvised and used in the Polish and Flanders campaigns to give high angle support fire to the attacking German infantry units.

The weapon used, based on the chassis of the obsolete Panzerkampfwagen I, was the 15cm sIG 33 (Schweres Infanterie Geschuetz 33) a standard German infantry support howitzer that could be used for either high or low trajectory shooting.

As this weapon proved successful, able to open fire

instantly and to come into position with comparative rapidity as compared to the horse or tractor drawn standard 15cm Infantry Howitzer, similar equipments based on the Panzer II, III and 38(t) chassis were built.

All these SP equipments, with the exception of the Panzer III version, were only armoured against shell fragments or small arms fire, and suffered from the disadvantage of being open at the top and rear. By the end of 1943 this type of equipment had become obsolete and was gradually replaced by the 10.5cm Sturmhaubitze or 15cm Sturmpanzer IV (Brummbaer).



15cm sIG 33 L/12 auf PzKpfw I Ausf. B or GW I fuer 15cm sIG 33

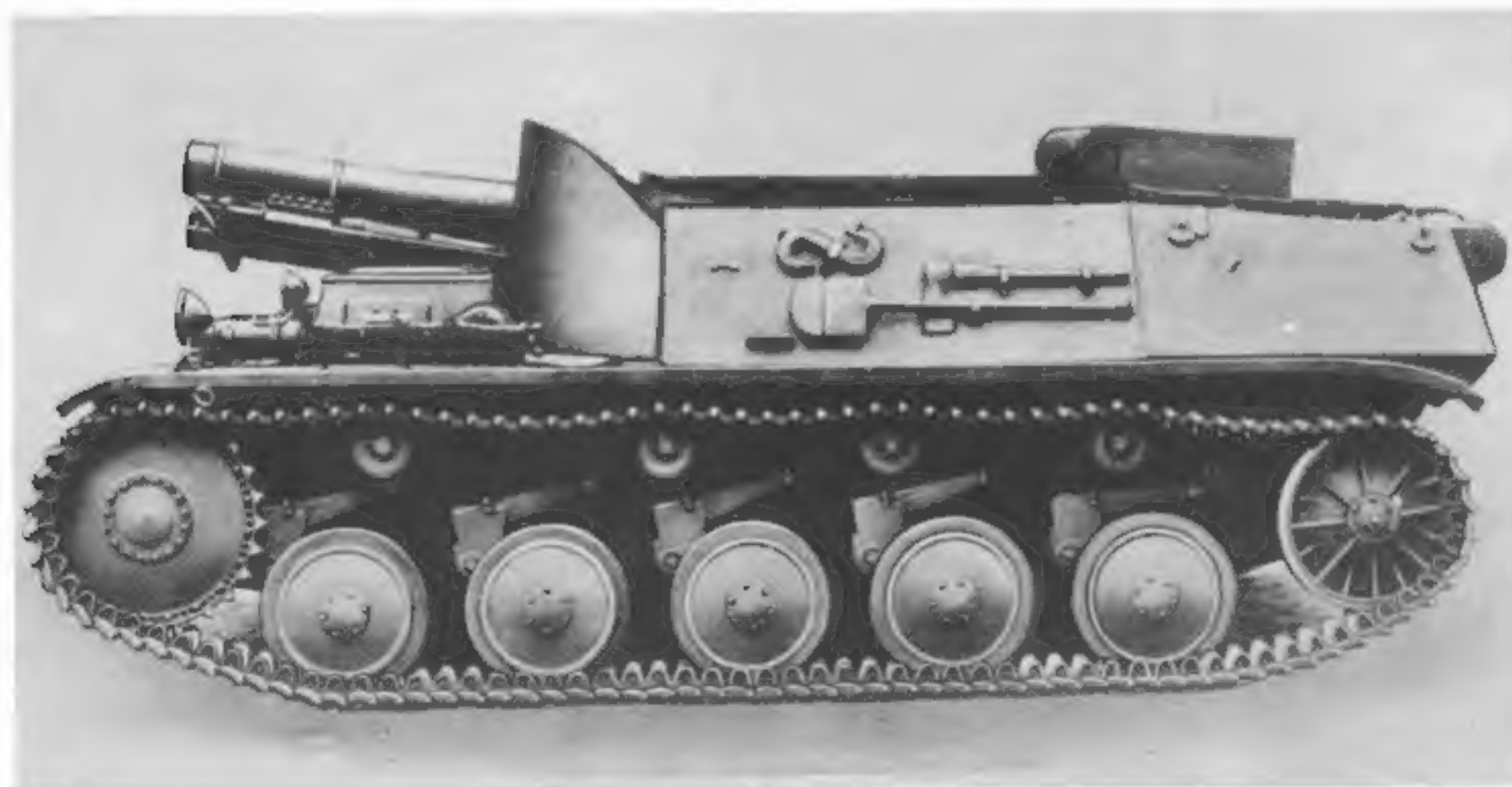
of 15cm sIG 33 auf Geschuetzwagen I Ausf. B

Produced in 1939, this equipment consisted of the 15cm sIG 33 infantry howitzer complete with shield, wheels and trails mounted on the chassis of the Panzerkampfwagen I Ausf. B. The howitzer and crew were protected by a large armoured box-shaped superstructure, open at the top and rear, 38 were built. Crew 4. Weight 8.5 tons.



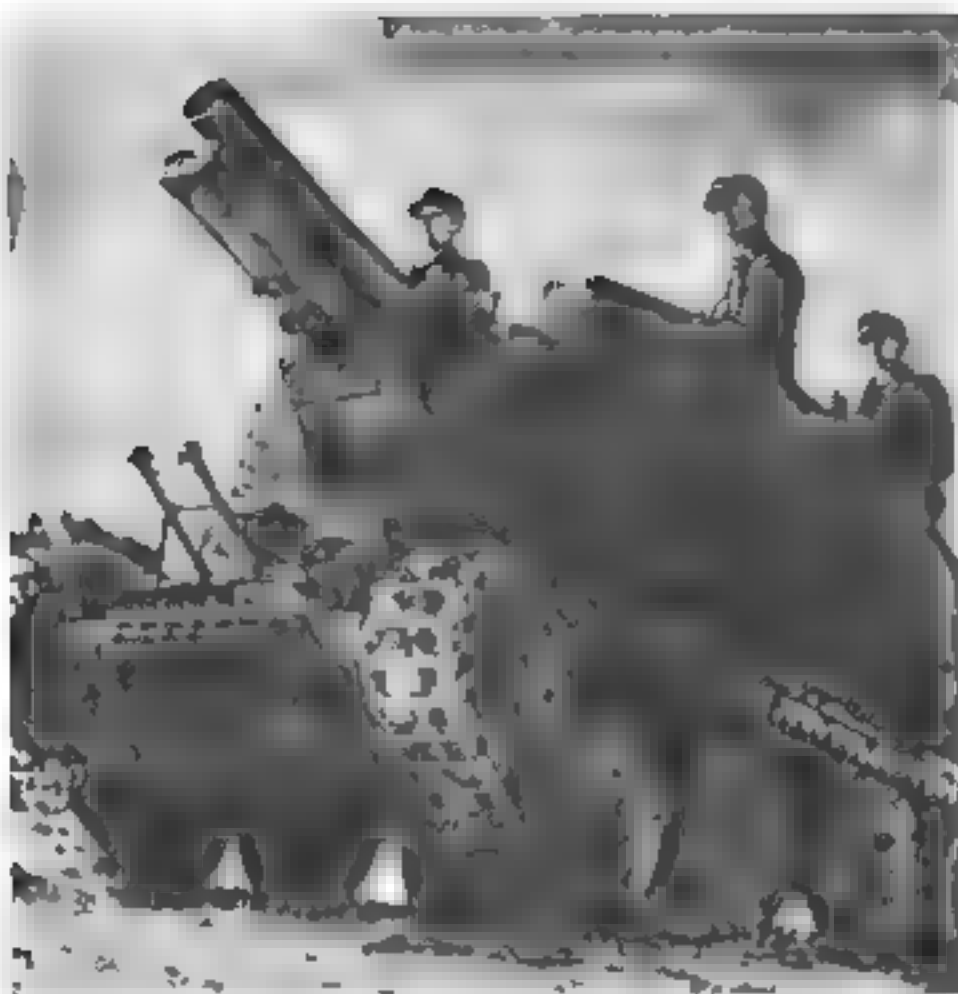
15cm sIG 33 auf Fgst PzKpfw II (Sf) Verlaengert or GW II fuer 15cm sIG 33

This modified version appeared in 1943, equipped with a lengthened chassis and an additional road wheel to replace the five-wheel version that was over-loaded.



15cm sIG 33 auf Fgst PzKpfw II (Sf) SdKfz 121 or GW II fuer 15cm sIG 33 or 15cm sIG 33 L/12 auf Pz II

This self-propelled equipment entered service in 1942 and was a conversion of the Panzerkampfwagen II Ausf. C modified to mount the sIG 33 howitzer. The gun was mounted in a low superstructure welded to the front glacis plate, and this superstructure was extended to the sides to close in the whole length of the chassis. Crew 5. Weight 12 tons.

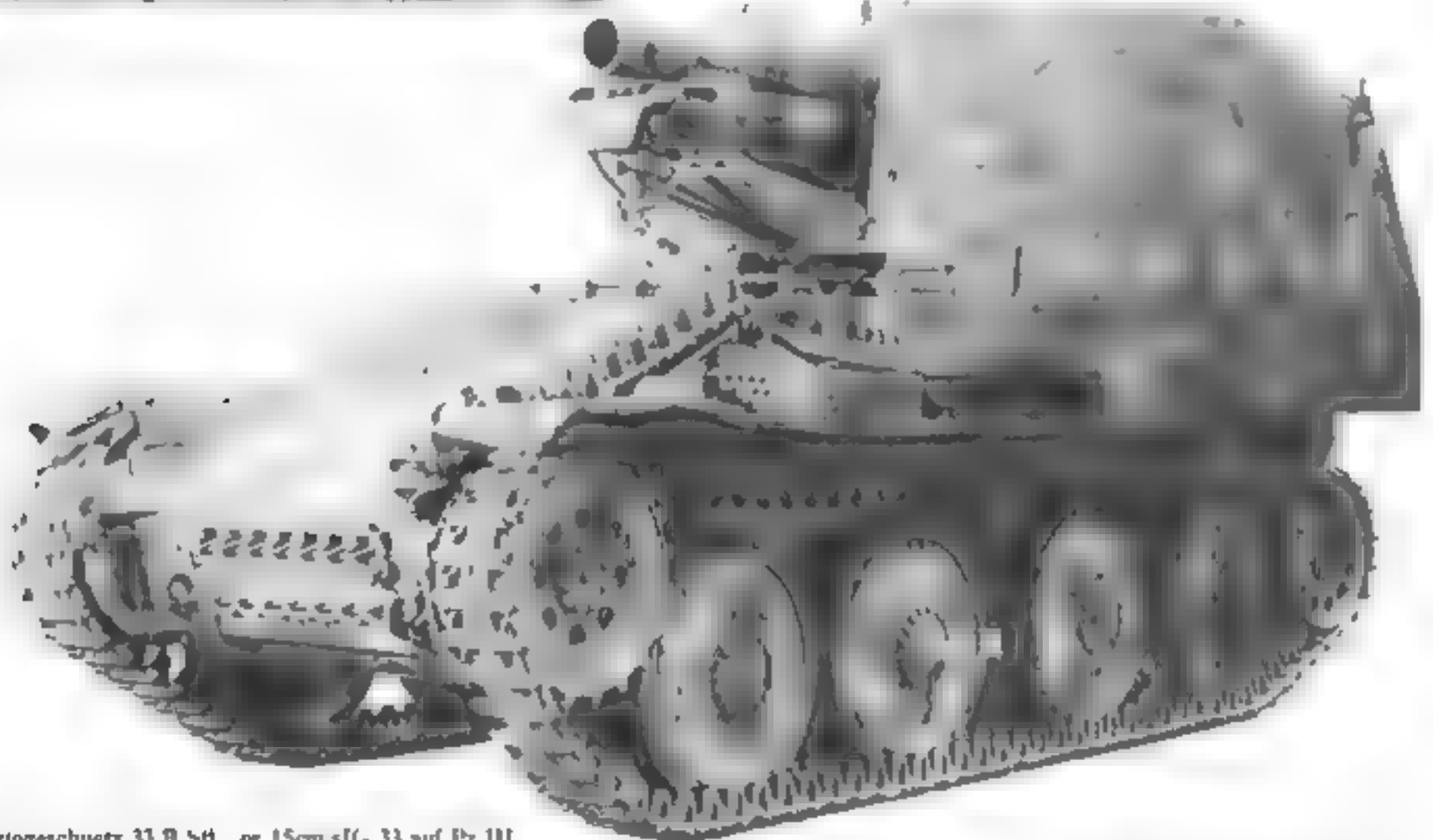


15cm sIG 33 (Sf) auf Panzerkampfwagen 38(t) Ausf. H, Bison
SdKfz 138 1 or 15cm sIG 33 1 12 auf (Sf) 38(t)
or 15cm sIG 33 auf Geschuetzwagen 38(t)

Produced in 1942 this equipment consisted of a 15cm sIG 33 howitzer mounted on the chassis of the Panzerkampfwagen 38(t). The gun was positioned at the front of the vehicle within an armoured open top superstructure that sloped towards the rear of the chassis. The front plate of the gun shield that had been retained, a further plate which moved forward and was fitted over the barrel and recuperator. Crew 4 Weight 12 tons

15cm sIG 33 1 12 auf (Sf) 38(t) Ausf. M
SdKfz 138 1 or GW 8 fuer sIG 33 1
or 15cm Schweres Infanteriegeschuetz 33 1 auf
GW 38(t)

Produced in 1943 this was an improved version of the above model. The gun was re-positioned centrally in the chassis and the fighting compartment moved to the rear. This was a similar arrangement to the one adopted for the Panzerkampfwagen 38(t) Ausf. M. A total of 170 vehicles of this type were built. Crew 4 Weight 12 tons



Sturm-Infanteriegeschuetz 33 B Sf or 15cm sIG 33 auf Pz III
or StuIG 33 auf Pz III

Produced in 1941 and based on the chassis of the Panzerkampfwagen III Ausf. H twelve were converted. For this conversion the 15cm sIG 33 howitzer was converted into a Sturmgeschuetz 33 B Sf.

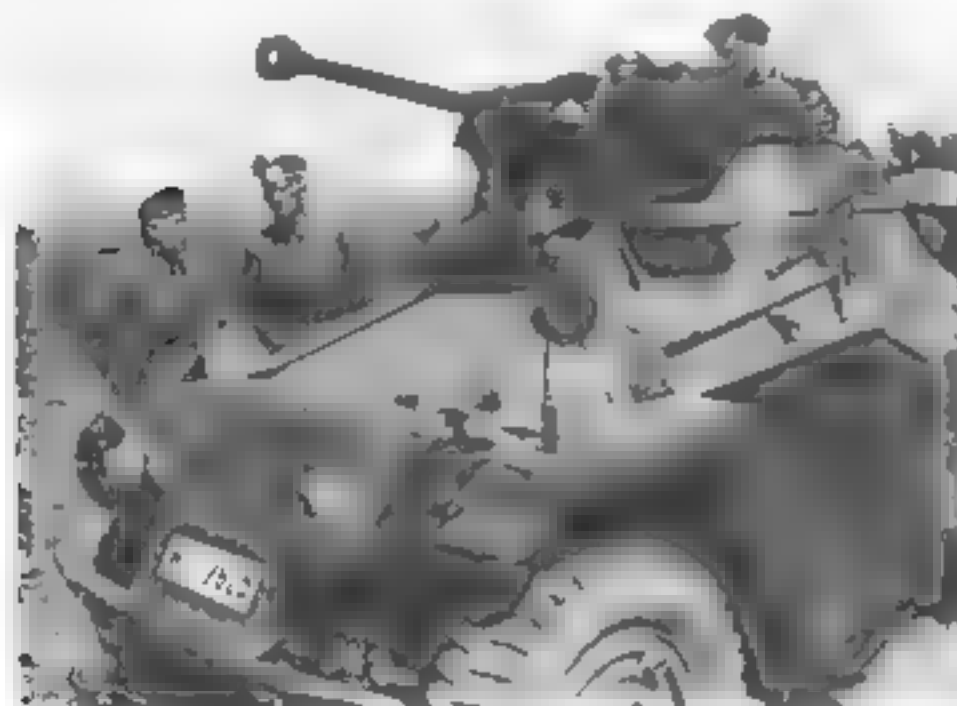
Weight 22 tons
Designed by Robertz



Self-Propelled Anti-Tank Guns (Panzerjaegers)

The largest proportion of the German self-propelled artillery consisted of the type known as the 'Panzerjäger' or Tank Hunter. These vehicles were characterised by their slightly modified, or unmodified tank chassis, their light, bullet-proof open topped superstructure and their armament which was practically unmodified from the field mounted version. Most of these equipments were improvised to make available the self propelled mounting of as many guns as possible in the shortest possible

LIGHT INFANTRY ANTI TANK GUNS



Leichter Panzerspähwagen SdKfz 221 mit 2.8cm Panzerabwehr-41 or 2.8cm sPzB 41 auf SdKfz 221
Produced in late 1941 this equipment was a light anti-tank gun mounted on the SdKfz 221 chassis. The normal 7.5mm MG 34 was removed and the top turret was cut away to mount the gun which retained its gun shield. Crew 2. Weight 4.5 tons. (Bundesarchiv Koblenz)



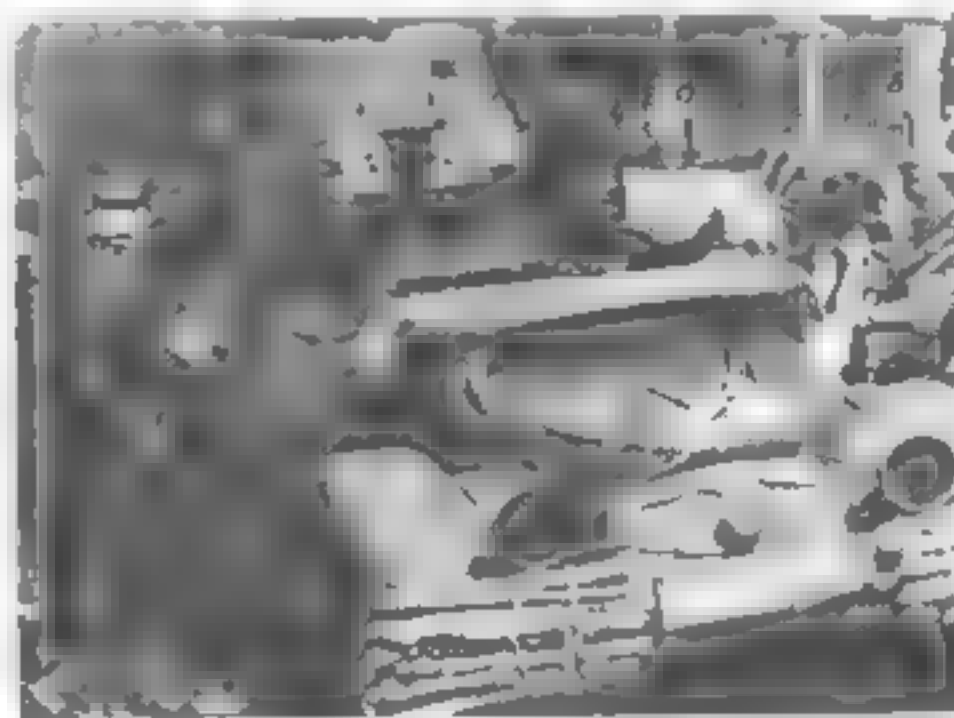
Leichter Schützenpanzerwagen (Schwere Panzerabwehr-41) SdKfz 250 11 or leichtes PzWg (sPzB 41)
The light personnel carrier SdKfz 250 adapted with 2.8cm sPzB 41. The weapon was dismountable on carriage (turbine type) was mounted at B. Crew 4. Weight 5.5 tons.



3.7cm Pak auf Fahrgestell Bren (e)
Conversion of the British Bren carrier to a self-propelled mounting for the 3.7cm Pak. Only a few were so converted, the gun and shield being mounted on the engine behind the driver's compartment.

time, some of these guns being of French, Russian or Czech origin.

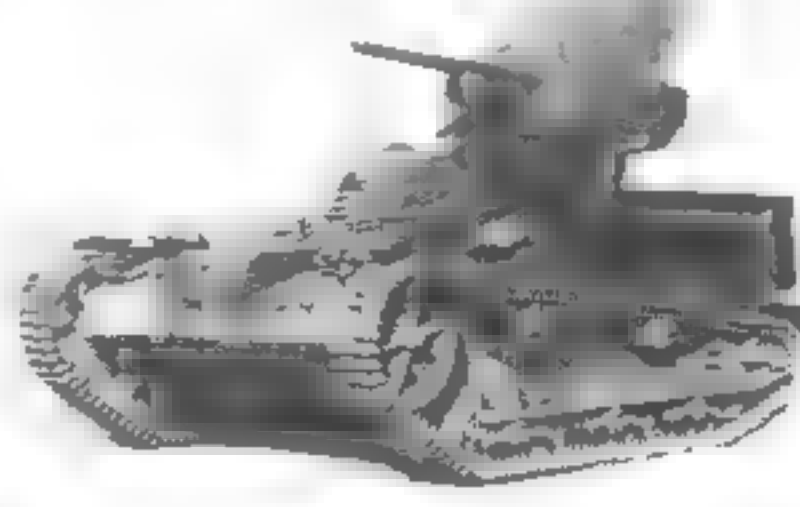
Although the bulk of this class of equipment was mounted on standard German tank chassis and semi-tracked vehicles, a number of them were based on captured French or Czech tank chassis converted to this role. Various types of wheeled vehicles were also adapted to carry certain anti-tank guns.



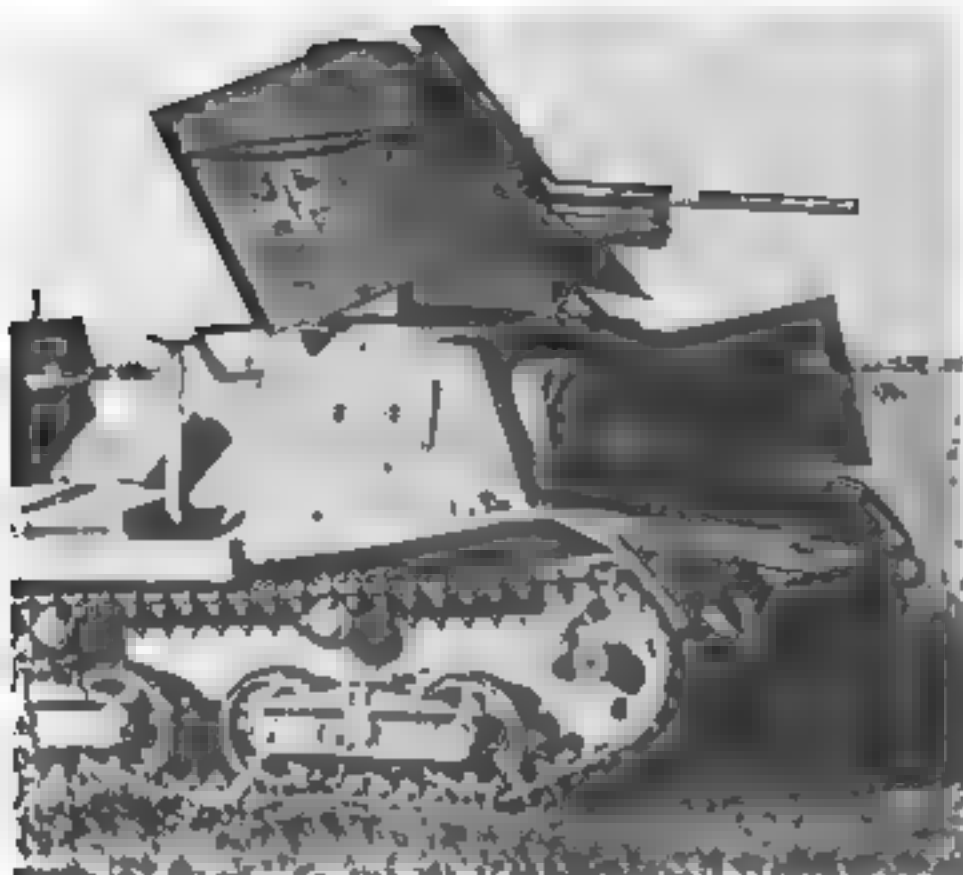
3.7cm Pak auf Lge Lkw (n)
Pak and field carriage mounted on a 6 x 4 Krupp light truck type 12H43. This was a field improvisation. The gun had a restricted traverse.



Leichter Schützenpanzerwagen SdKfz 251 equipped with the 2.8cm anti-tank gun. This was not a standard fitting on this class of vehicle.

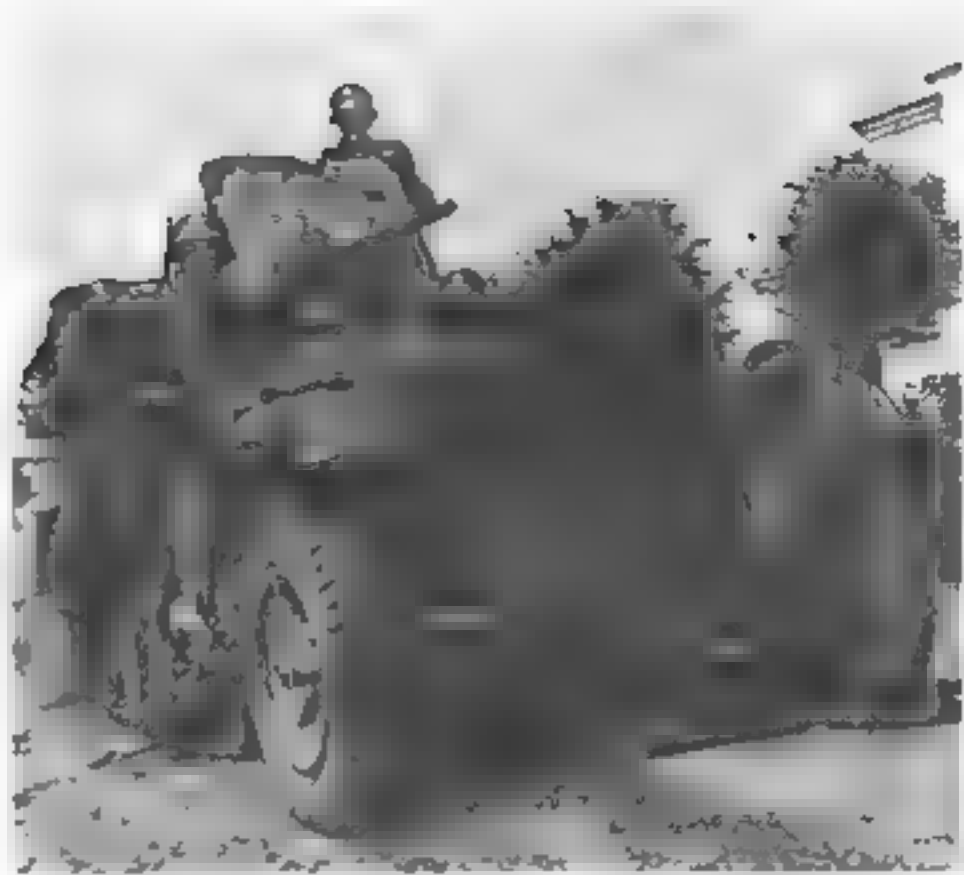


3.7cm Pak (Sf) auf Infanterie Schlepper LE (N)
Infantry carrier adapted with minor modifications for the 3.7cm Pak. Crew 3. Weight 2 tons.



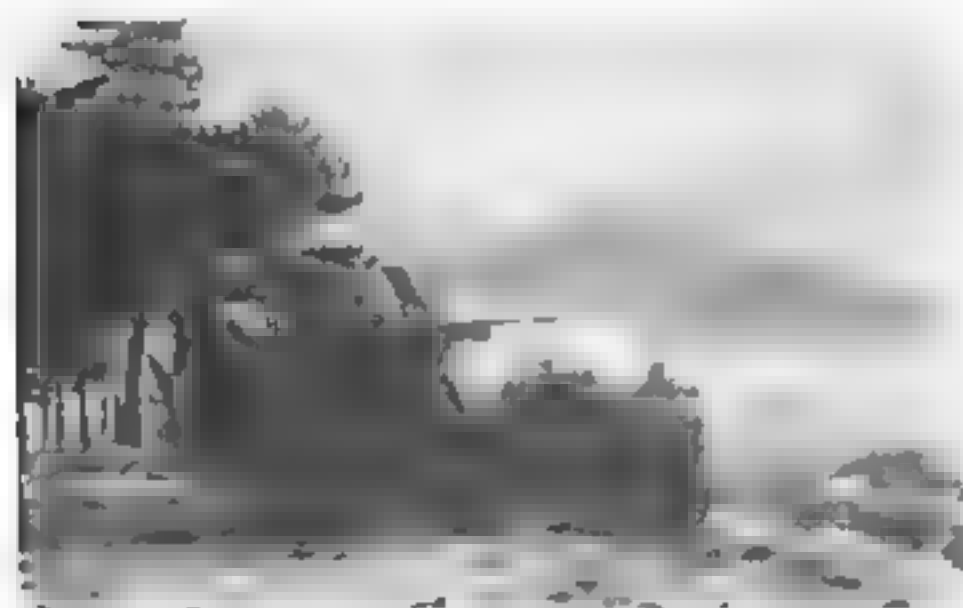
3.7cm Pak auf gep. Artillerieschlepper(r)

This was a typical field improvisation and consisted of the 3.7cm Pak mounted on the Russian artillery tractor STZ Komсомо́л.



3.7cm Pak auf le. Zgkw

This was a field conversion and consisted of the 3.7cm Pak with front pedestal mount on the SdKfz 10. A number of variants of this improvised mounting existed, some of the vehicles being fitted with make-shift gun shields. Crew 5. Weight 5.5 tons approx.



3.7cm Pak (SH) auf Zgkw lt

To provide additional mobility for the 3.7cm Pak used by the German army, a number of these guns were converted into light anti-tank carriers and mounted on the SdKfz 10, a pedestal mount being provided. Crew 5. Weight 4.9 ton.



Leichter Schuetzenpanzerwagen (3.7cm Pak) SdKfz 250 10

Produced during 1942, this equipment consisted of the 3.7cm Pak mounted on the light personnel carrier SdKfz 250. Several variations existed, depending on the gun shield. One version was fitted with the normal gun shield as shown, and only with a small armour shield on the front. In other versions, the gun shield was dispensed with altogether. Crew 4. Weight 5.5 tons approx.



Mittlerer Schuetzenpanzerwagen (3.7cm Pak) SdKfz 251 10

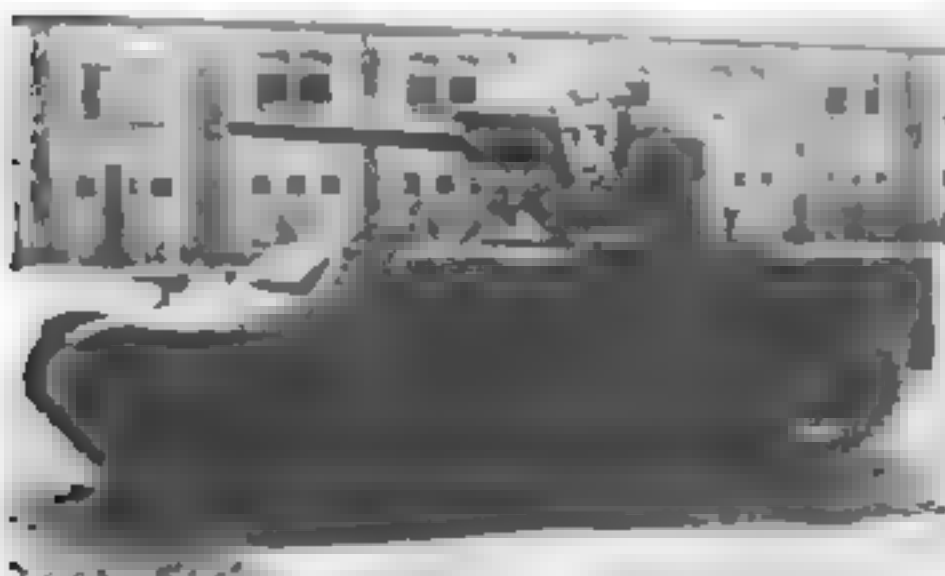
This was the first adaptation of the 3.7cm Pak to be mounted on a tracked personnel carrier. Produced in 1940 this equipment was based on the SdKfz 250 10 with variations to the gun shield. The gun was equipped with a new pattern gun shield to decrease the silhouette of the vehicle. Crew 4. Weight 5.5 tons.



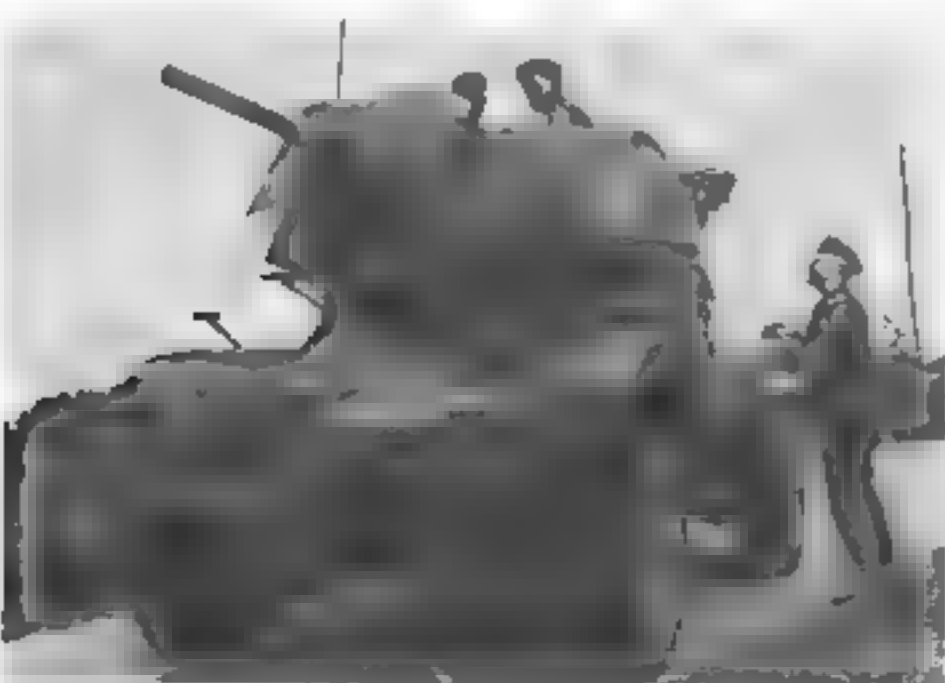
Example of SdKfz 251 10 with lower gun shield



4.7cm Pak (t) SR auf PzKpfw I Ausf. B or Panzerjäger I fuer 4.7cm Pak (t)
 Introduced into service in 1940, this was the first self-propelled anti-tank gun to enter German service. Based on the chassis of the PzKpfw I Ausf. B, this equipment was fitted with a Czech 4.7cm anti-tank gun L 43 mounted in a three-sided gun shield. Crew 3. Weight 6 tons.

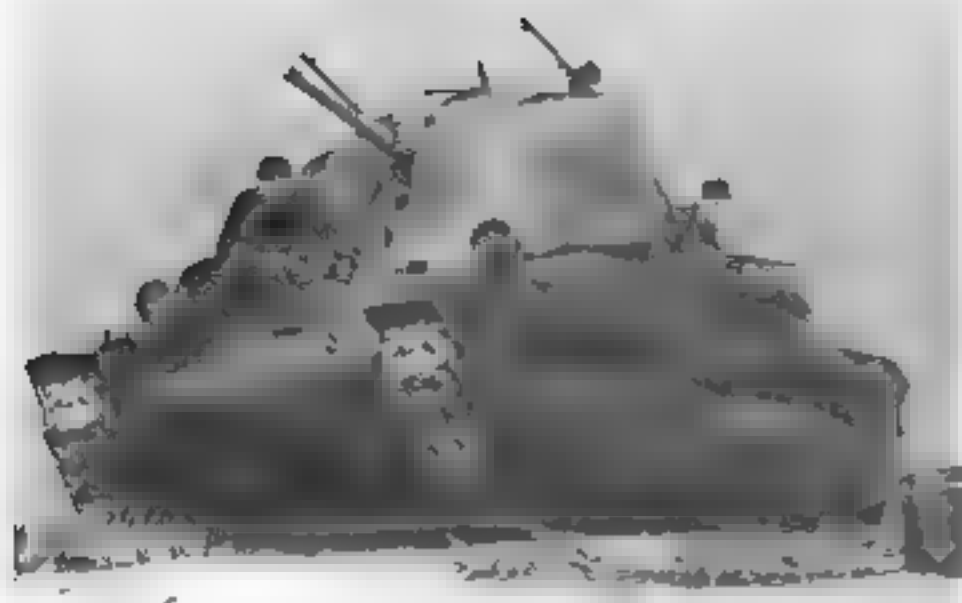


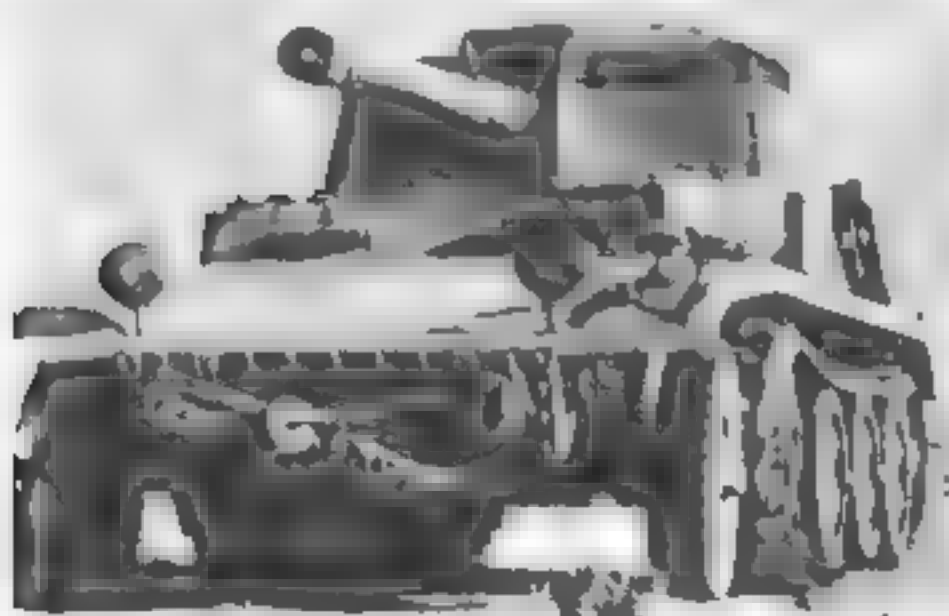
Top left
4.7cm Pak 181 oder 184(f) auf PzJaeg Lorraine Schlepper (f)
 Introduced into service in 1941, this equipment consisted of the French Panhard 178 chassis with either the French 4.7cm Pak 181 or 184 anti-tank gun mounted on a pedestal. Crew 3. Weight 6 tons.



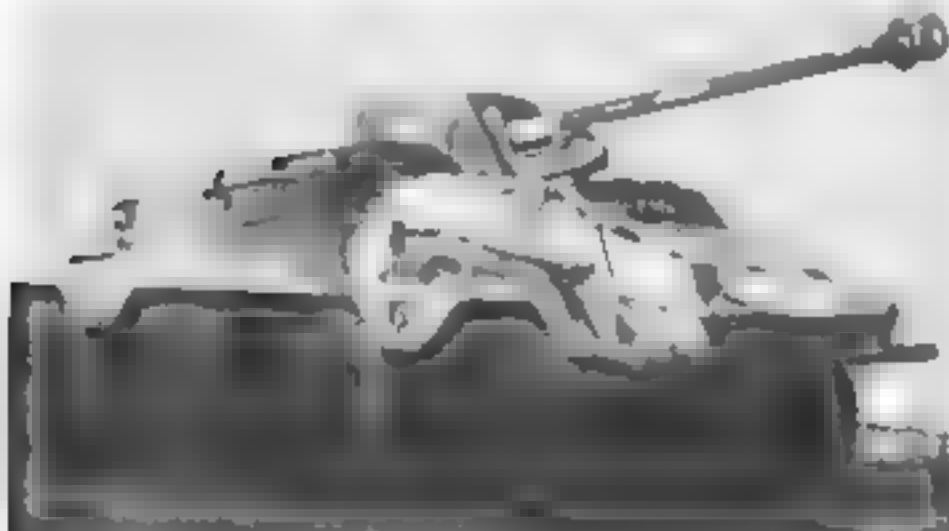
Top right
4.7cm Pak (t) auf PzKpfw 35R (f)
or 4.7cm Pak (t) auf Panzerjaeger Renault R35 (f)
 Based on the French Renault R35 tank chassis, this equipment consisted of the French 4.7cm Pak (t) anti-tank gun mounted on a pedestal. Crew 3. Weight 10.5 tons.

Bottom left
4.7cm Pak(f) auf Panzerspähwagen P 204(f)
 A small number of captured French Panhard 178 chassis were converted to anti-tank vehicles. The vehicle's turret was removed and replaced by a superstructure in the front of which the 4.7cm Pak(f) anti-tank gun was mounted. Crew 3. Weight 6 tons.

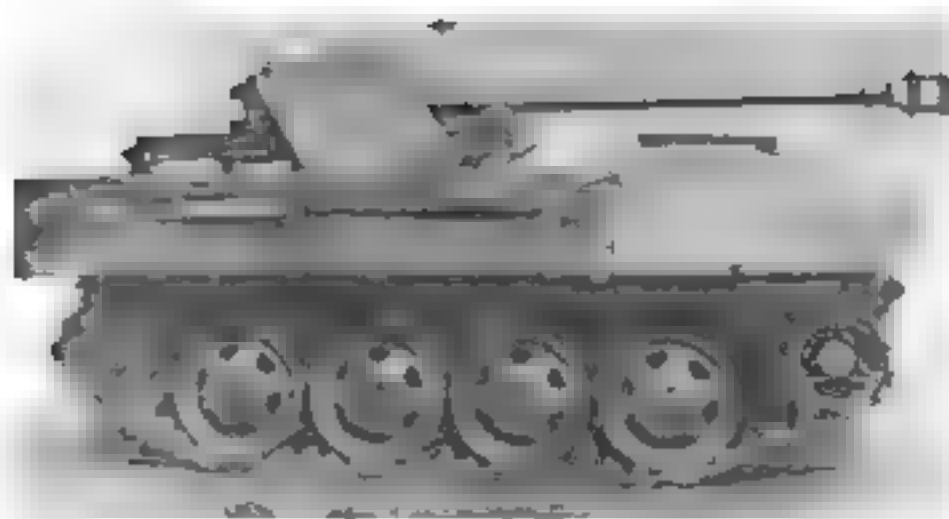




7.5cm Sfl L. 40.8 or 7.5cm Selbstfahrlafette L. 40.8
Based on an early model of the Buessing-NAG 5-ton semi-tractor series, this vehicle appeared in 1944 and consisted of the full, tracked crew transport, the *Neue Raubenschlepper Ost* (Tracked Tractor East or RSO). The engine was moved to the rear and the vehicle was fitted with a gun body mounting a 7.5cm L. 40 Pak gun in a rotating turret. It was used in North Africa. Crew 4. Weight 8 tons.



Schwerer Panzerspähwagen (7.5cm lang) SdKfz 234.4
This conversion was produced on Hitler's personal orders. It was practically identical to the SdKfz 234.3 except for the longer gun. The complete gun (7.5cm Pak 40 L. 48) less wheels and tracks was mounted in a position in the rear of the vehicle. The vehicle was often referred to as the *Pakwagen*.



7.5cm Pak 40 (Sf) auf Pz.Jaeg RSO or 7.5cm Pak 40.1 auf RSO (Sf)
This vehicle appeared in 1944 and consisted of the full, tracked crew transport, the *Neue Raubenschlepper Ost* (Tracked Tractor East or RSO). The engine was moved to the rear and the vehicle was fitted with a gun body mounting a 7.5cm L. 40 Pak gun in a rotating turret. It was used in North Africa. Crew 4. Weight 8 tons.



7.5cm Pak 40.1 auf Lorraine Schlepper(S) (Marder II) SdKfz 135 or Panzerjaeger fuer 7.5cm Pak 40 (Sf) Lorraine Schlepper or Pz.Jaeg LRS fuer 7.5cm Pak 40.1
Produced in 1942, the Lorraine tractor was converted as self-propelled anti-tank gun. The 7.5cm Pak 40.1 The gun was mounted within a high open superstructure. Crew 3. Weight 8 tons. (Bundesarchiv Koblenz)

7.5cm Pak 40 L. 46 auf mittlerer Schuetzenpanzerwagen, SdKfz 251.22
This was the last official variant of the SdKfz 251 series. It stemmed from the fact that as many anti-tank guns as possible be mounted on the carrier to combat the increasing numbers of enemy tanks. This equipment entered service during November 1944 and consisted of the 7.5cm Pak 40 without its wheels and gun trails mounted on a sub frame within a SdKfz 251 armoured carrier. Part of the driver's compartment roof was removed to permit limited traverse of the gun. Crew 4.



7.5cm Pak 40 L. 46 auf mittlerer Schuetzenpanzerwagen, S. 307(N) or 7.5cm Pak 40 L. 46 auf Zgkn Somua(N)
Produced in 1944, the French Somua semi-tracked vehicle was converted into an anti-tank gun. It mounts for the 7.5cm Pak 40. Crew 3.4.



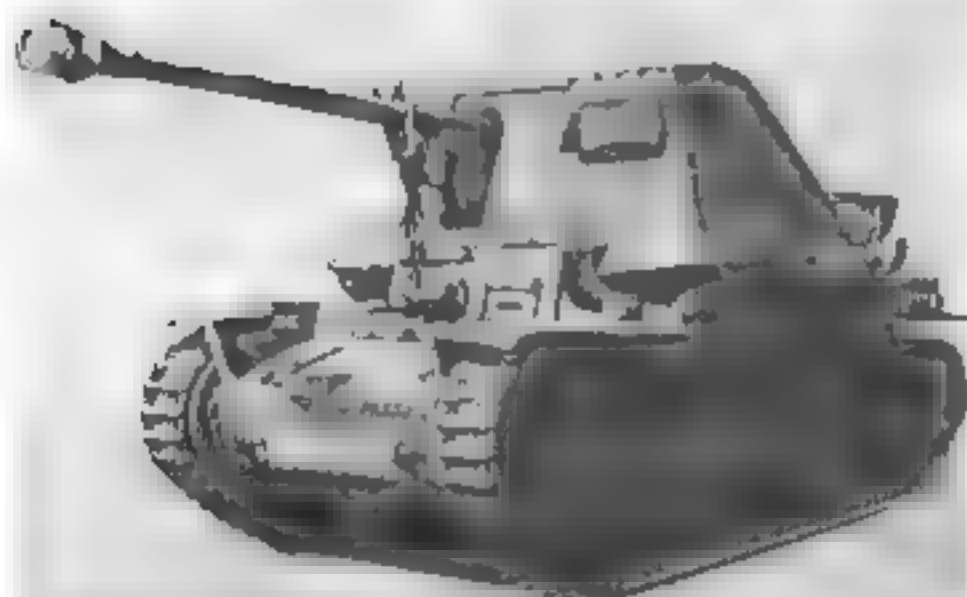
7.5cm Pak 40 2 auf Sfl II (Marder II) Sdkfz 131
or PzJaeg II Ausf. A, C und F fuer 7.5cm Pak 40 2 L-46
or GW II fuer 7.5cm Pak 40 2 (Marder II)

Prototypes of this equipment were first tested with the 5cm Pak 38 (5cm Pak 38 auf Pz. PzKpfw II), but the production version was fitted with the more powerful 7.5cm Pak 40 2. These equipments entered production during 1942. The basic chassis used for this conversion was the PzKpfw II Ausf. A, C and F. The engine was removed to the rear and the 7.5cm gun with its original shield was mounted on a platform on the front of the vehicle being protected by a 10mm armour shield that sloped to the rear. All this equipment were built. Crew 4. Weight 10.8 tons.



Panzerjueger 38(t) Ausf. M Sdkfz 138
or 7.5cm Pak 40 3 (L 46) Marder III auf G.W. 38

This self-propelled mount consisted of the 7.5cm Pak 40 mounted on a considerably modified PzKpfw 38(t) chassis. As the previous Marder III had suffered difficulties because it was nose heavy, the engine was re-positioned centrally in the chassis and the gun moved to the rear. The superstructure of 10mm plates was extended over the tracks to the extreme rear of the vehicle, this arrangement bringing the fighting position more conveniently to the back of the hull. A total of 799 vehicles were converted, production beginning in mid-1943. Crew 4. Weight 10.5 tons.



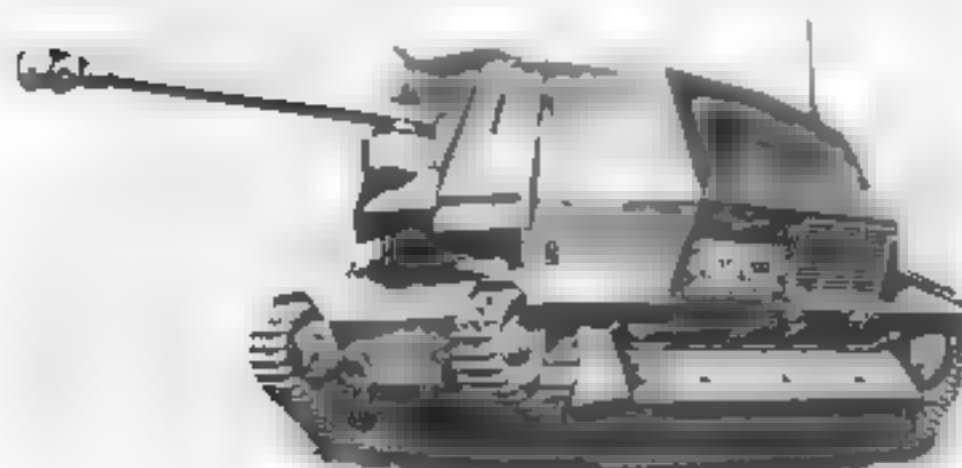
7.5cm Pak 40 3 (L 46) auf PzJaeg 38(t) Sdkfz 138
or 7.5cm Pak 40 3 auf Sfl 38(t) Ausf. H
or Panzerjueger 38(t) Marder III

Produced in late 1942 as an interim tank destroyer, this equipment consisted of the 7.5cm Pak 40 mounted on the chassis of the ex-400 Praga TNH LT38 tank chassis, designated by the German Army as Panzerkampfwagen 38(t). The gun was positioned at the front of the vehicle protected by a three-sided open top gun shield (10mm-15mm armour plate). Total number converted was 418. Crew 4. Weight 10.8 tons.



7.5cm Pak 40 auf G.W. 39H(t)

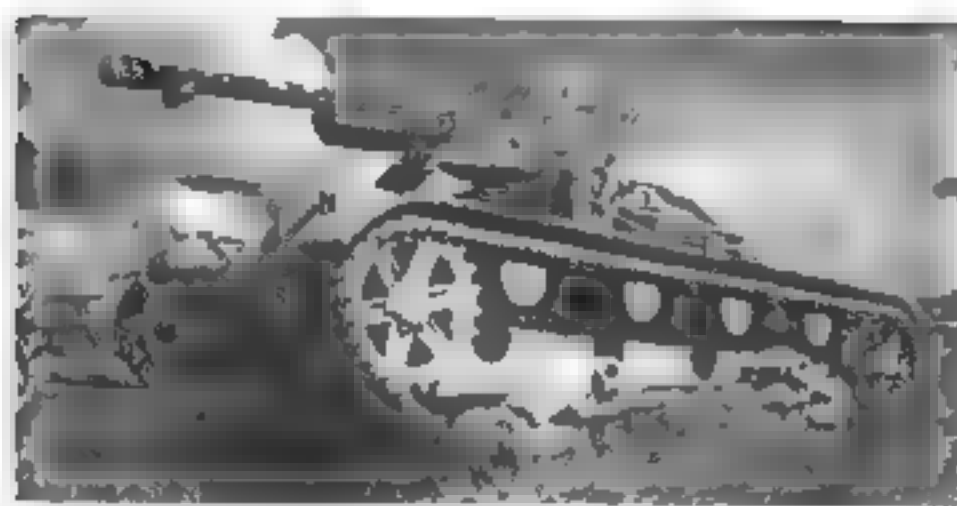
Produced during 1942, the basic chassis used as a self-propelled mount for this equipment was the French Hotchkiss H39 tank, a total of 24 being converted. This conversion was similar to that of the Marder I, the gun being mounted forward within a high open top armoured superstructure with the gun shield overlapping the front plate. Crew 3. Weight 10.5 tons.



7.5cm Pak 40 auf G.W. FCM(t)

Entering service during 1943, this conversion was based on the French FCM tank chassis. Only 10 of these vehicles were converted. The design of the superstructure was similar to that of the previous Marder I and II French tanks. Crew 3-4. Weight 13.5 tons.

FOREIGN ANTI-TANK GUNS



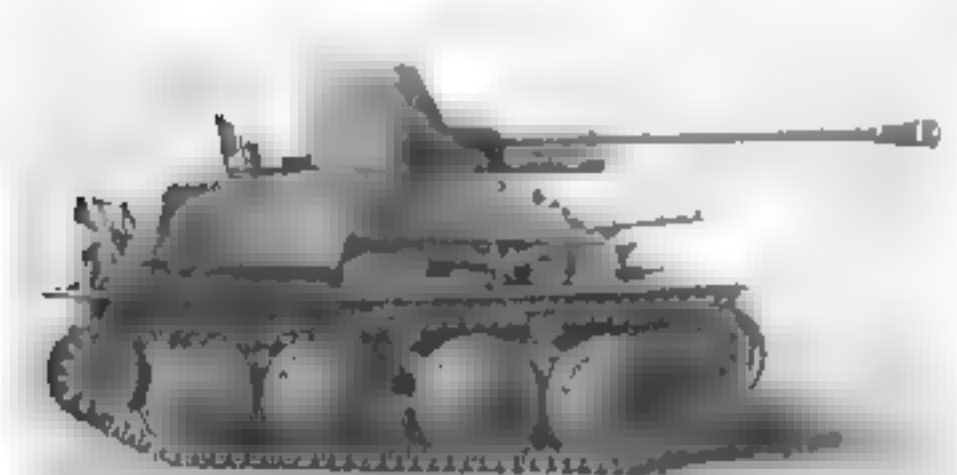
7.5cm Pak 97/38 auf m Beute Panzer T 26

This was an experimental equipment built in 1943 and consisted of the French 75mm gun Model 1897 mounted on the chassis of the Russian light tank T 26. The gun, of which large stocks had been captured in France, had originally been adopted into the German Army in 1942 where it had been remounted on the field carriage of the German 5cm Pak gun and fitted with a long perforated muzzle brake. The modified gun was designated 7.5cm Pak 97/38. (Bundesarchiv Koblenz)



7.62cm Pak 36(r) auf Panzerjaeger Selbstfahrlafette Zugkraftwagen 5t, Diana

Nine of these equipments were built during 1941-42. They consisted of the Russian 7.62cm FK 206 gun on its wheeled carriage with the gun trails shortened mounted on the chassis of the 5 ton Buessone SdKfz 6. For this conversion a high box type armoured superstructure was built behind the driver's compartment consisting of two sides and a back plate, all of which were fitted with hinged doors. Frontal protection was provided by the gun shield set behind partly built-up front plates. Crew 3. Weight 10.5 tons. (Bundesarchiv Koblenz)



Panzer selbstfahrlafette II fuer 7.62cm Pak 36(r) SdKfz 139, Marder III

or Panzerjaeger W(1) fuer 7.62cm Pak 36(r)

This vehicle appeared early in 1942 and was an expedient for a tank destroyer to counter the large numbers of new enemy tanks T 34 and KV's, appearing on the Russian front. As the only effective anti-tank gun available was the Russian 7.62cm FK 206 of which large numbers had been captured during the early fighting in Russia, it was decided as an interim measure to mount these guns on the chassis of the Czech T 15 tank. To speed production the conversion was made as simple as possible. The turret and forward deck plates were removed and replaced by a cruciform on which the gun less its undercarriage was mounted. A low armoured superstructure was fitted around the vehicle to protect gun mounting and crew. A total of 344 were built. Crew 4. Weight 10.5 tons.



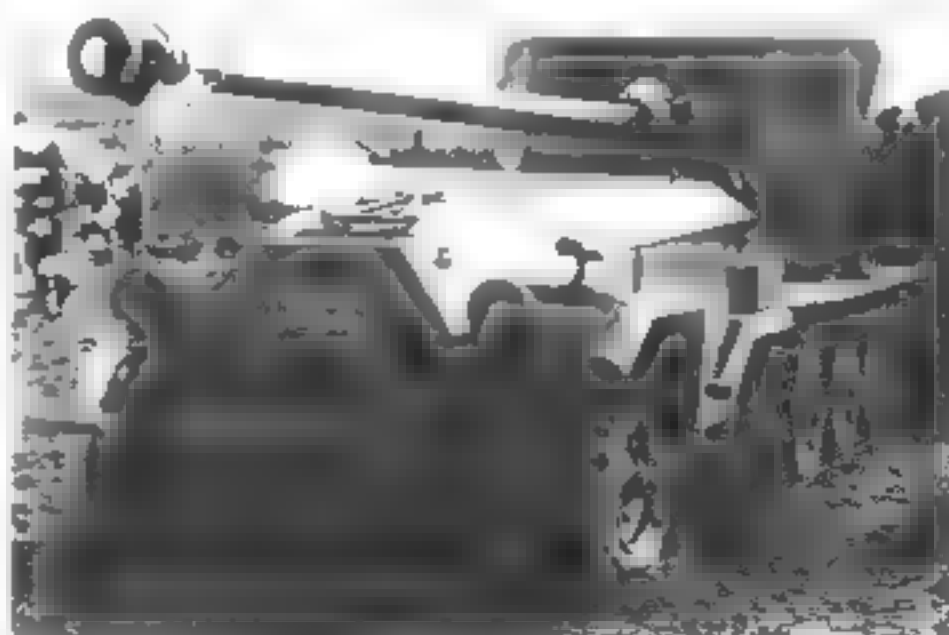
PzKfz fuer 7.62cm Pak 36(r), Sd Kfz 132 (Marder II) or 7.62cm Pak 36(r) L 54.8 auf Fgst, Pzkpfw II (Stf) or PzJaeg II Ausf. D, E fuer 7.62cm Pak 36(r) or 7.62cm Pak 36(r) (Stf im Pzkpfw II)

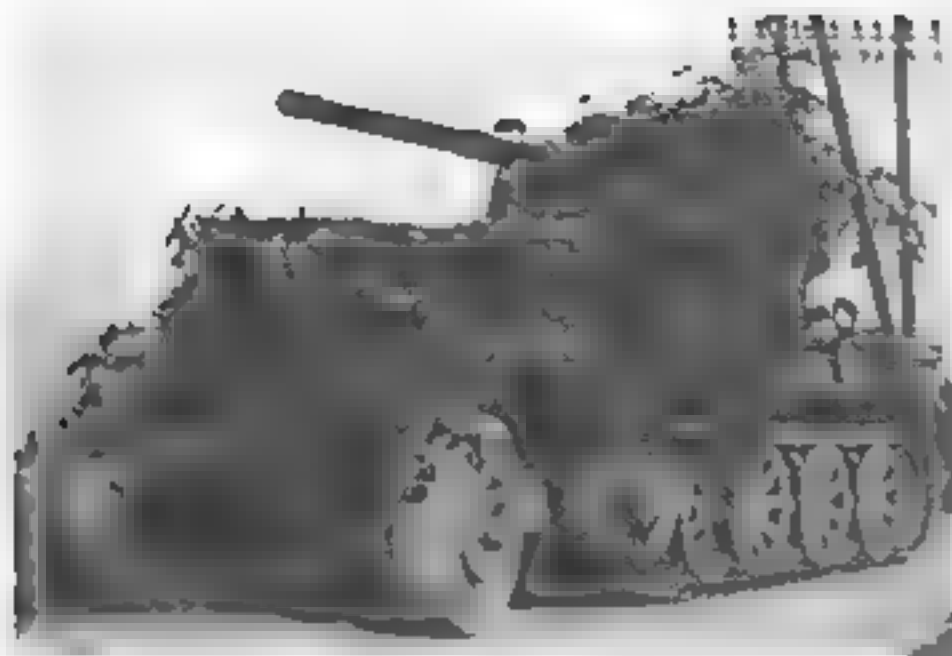
This vehicle also appeared early in 1942 and like the early Marder III was an interim design for a mobile tank destroyer. Based on the chassis of the Panzerkampfwagen II Models D and E this version was also armed with the Russian 7.62cm FK 206 anti-tank gun. Like the Marder III SdKfz 139 the gun and shield were mounted above the superstructure whereas the normal practice was to enclose the gun within the armoured superstructure. Later in the war some vehicles of this conversion were equipped with the German 7.5cm Pak 40/2. Crew 4. Weight 11.5 tons.

SUPER-HEAVY ANTI-TANK GUNS

8.8cm Kw K 43 L/71 auf mittlerer Schuetzenpanzerwagen

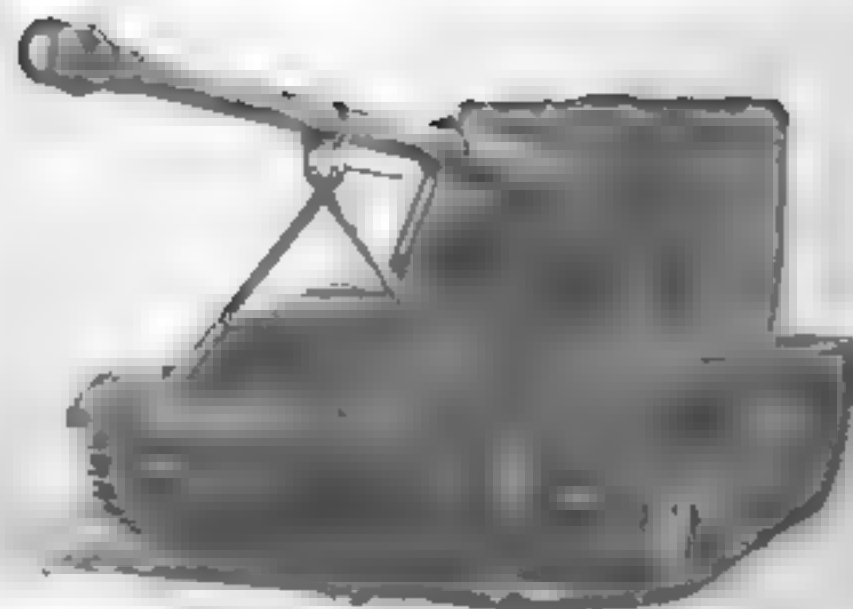
Developed during 1943, this was an experimental mounting of the 8.8cm Kw K tank gun carried on a modified chassis of the SdKfz 251.





8.8cm Flak 18 auf Selbstfahrlafette Zugkraftwagen 12t

This anti-aircraft mount was developed in 1940. The 8.8cm Flak 18 was mounted on the chassis of a tractor Sdkfz 8 which had been armoured in front. At the back of the chassis was a platform on to which the gun mounting was fixed. (Bundesarchiv Koblenz)



8.8cm Pak 43 3 auf Panzerjaeger 38(t)

This anti-tank gun was mounted on the chassis of a Panzerjaeger 38(t) which had been modified to carry the gun. The gun was mounted on a high-angle, traversable mount. (Bundesarchiv Koblenz)



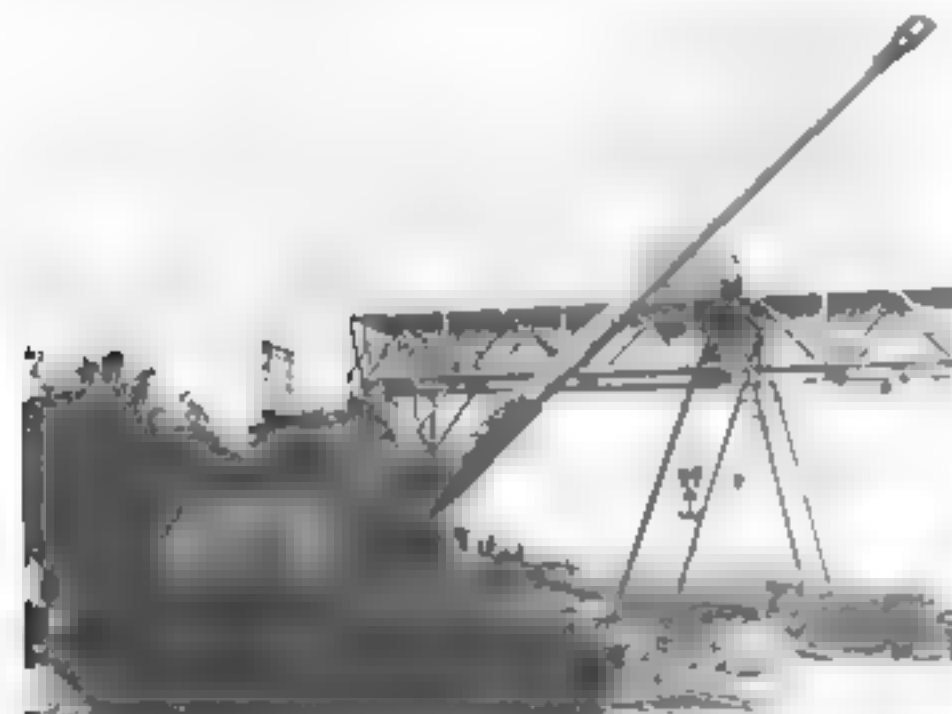
8.8cm Panzerjaeger 43 auf Sfl 38(d)

This pilot model built by Rheinmetall-Borsig and Ardeh appeared in 1945. The carriage used for this conversion was a purely German re-designed and enlarged version of the Panzerjaeger 38(t) powered by a new Tatra diesel engine that had now been moved to the front of the vehicle. The 8.8cm Pak 43 was mounted at the rear of the chassis in an open top armoured turret that had all-round traverse. Designated 38(d) this modified chassis had been developed as a self-propelled mount for the Waffenträger series on which it was planned to carry anti-tank field or medium guns mounted on their field carriages and which should when required be dismountable to permit firing from the field carriage on the ground. Crew 4. Weight 15.5 tons.



8.8cm Pak 43 1 (L 71) auf PzKpfw III IV (SD), Sdkfz 164 or Panzerjaeger III IV Nachbarn frueher Horstsee

Introduced into service in November 1942 this equipment consisted of a modified Pz K chassis with the engine moved forward and installed directly behind the transmission to provide a clear space for the fighting compartment at the rear. The gun was mounted over the engine and both gun and crew were protected against small arms fire by a high open topped superstructure of thin armour plate 30mm at the front and 20mm at the sides. The transmission and drive were the same as those used on the Pz III. Two types of driver's hatches were used on these vehicles of which 473 were built. Crew 5. Weight 26.5 tons.



8.8cm PjK43 3 auf Krupp Steyr Sfl 38(d)

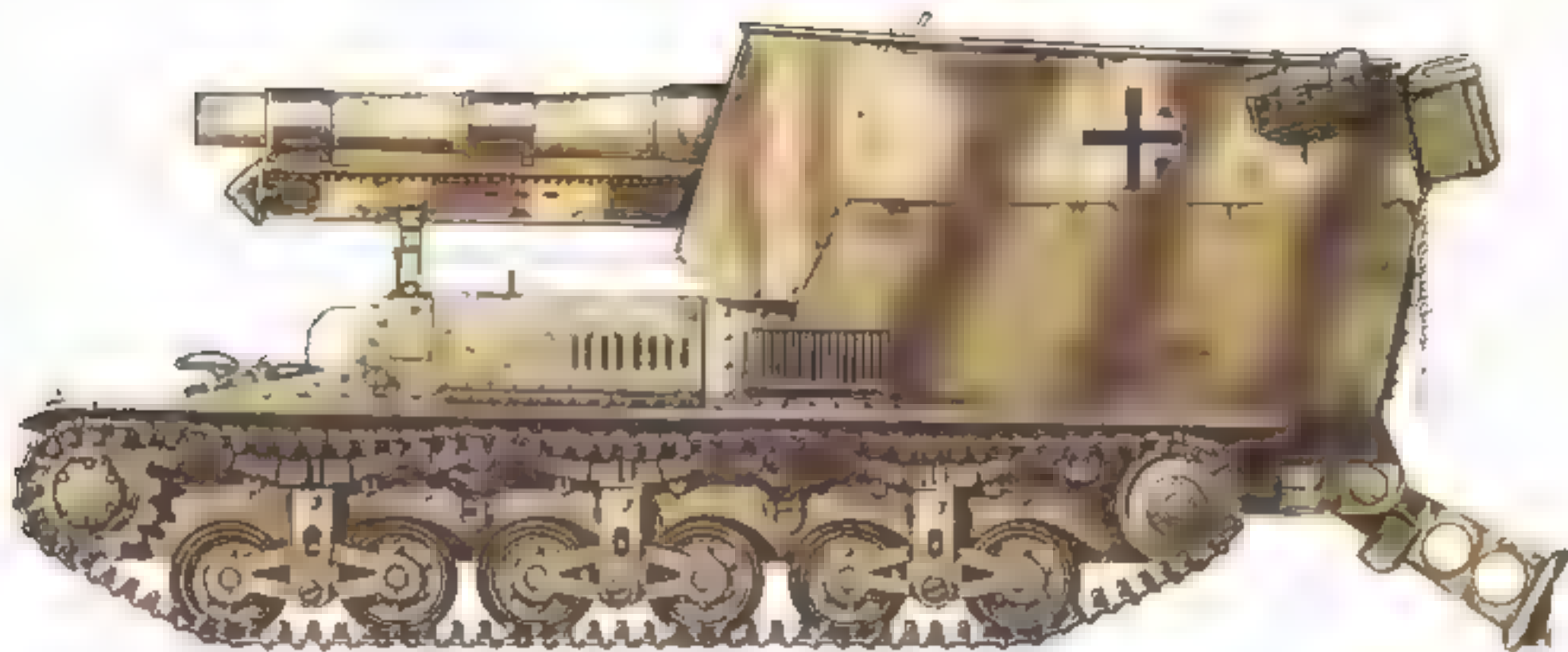
This anti-tank gun was mounted on the chassis of a Krupp Steyr Sfl 38(d) which had been modified to carry the gun. The gun was mounted on a high-angle, traversable mount. (Bundesarchiv Koblenz)



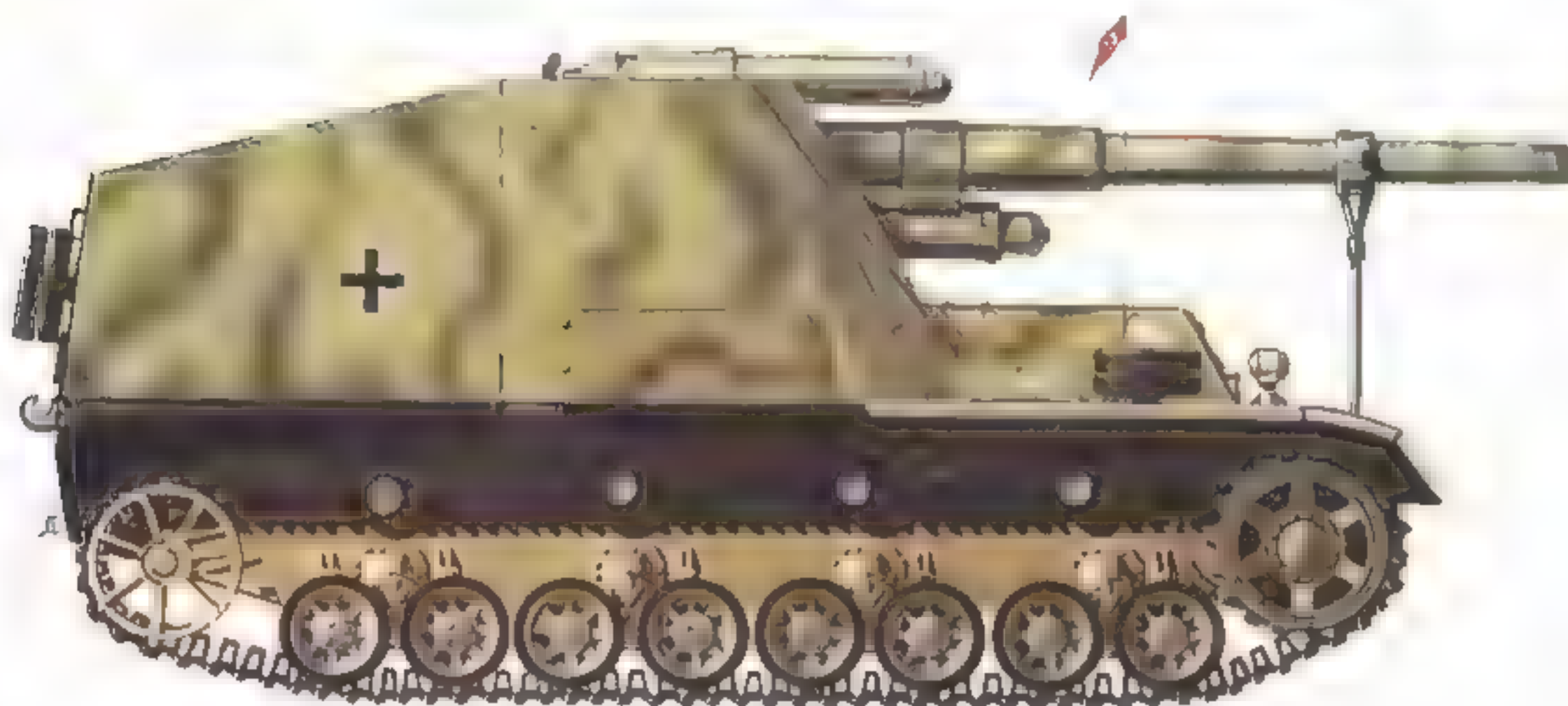
17.8cm K 40 auf Versuchsfahrgestell VK 3001 II

or 12.8cm Kanone 40 auf Sfl VK 3001 (II) or 12.8cm Selbstfahrlafette I 61 (Panzer Selbstfahrlafette V)

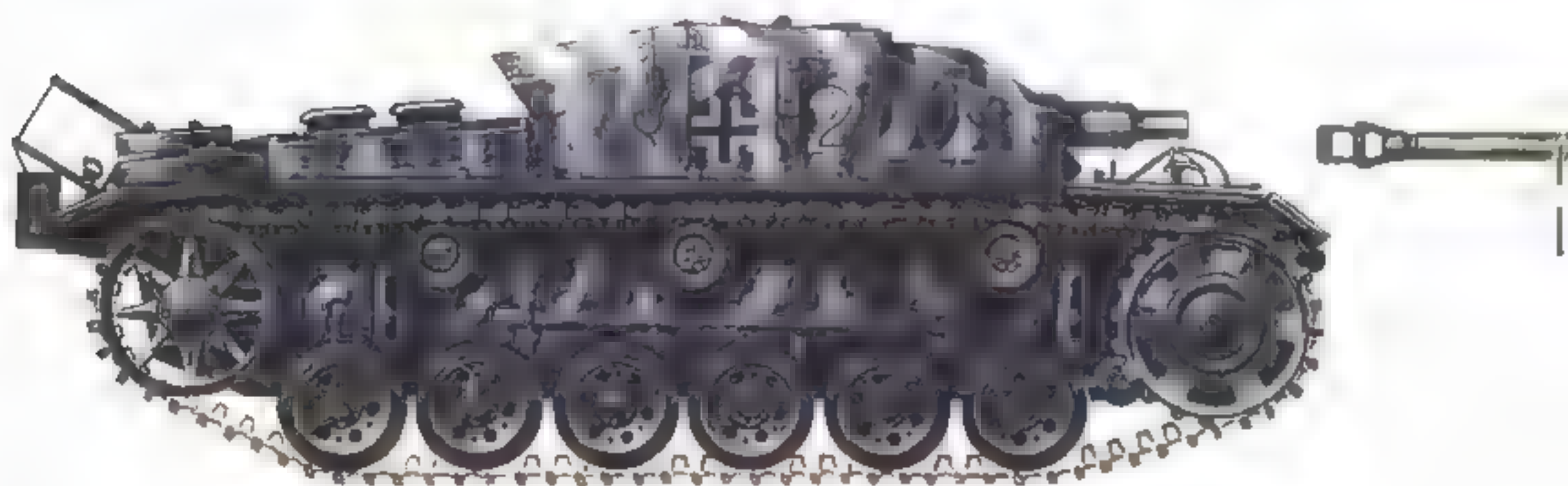
This anti-aircraft gun was mounted on the chassis of a Versuchsfahrgestell VK 3001 II which had been modified to carry the gun. The gun was mounted on a high-angle, traversable mount. (Bundesarchiv Koblenz)



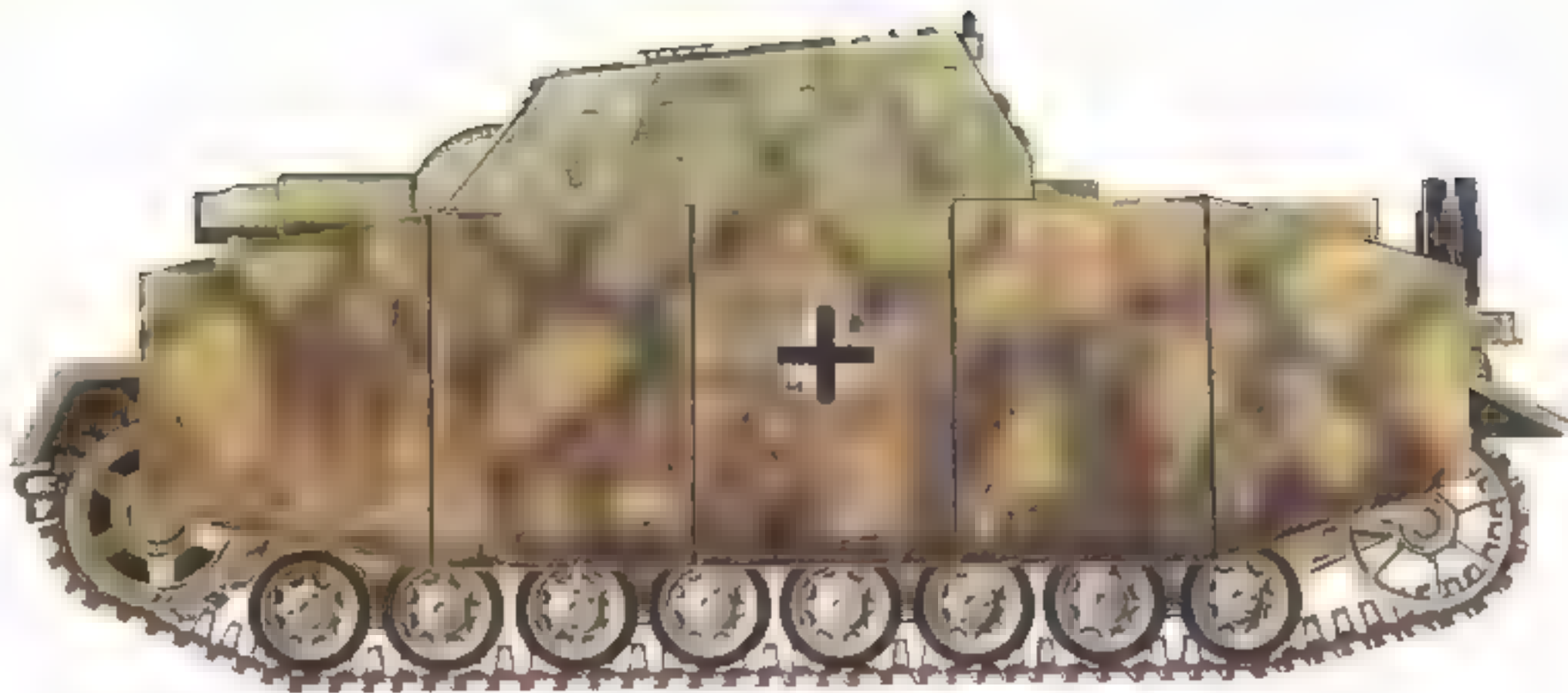
15cm sFH 13 Sf Lorraine (SdKfz 135 1)



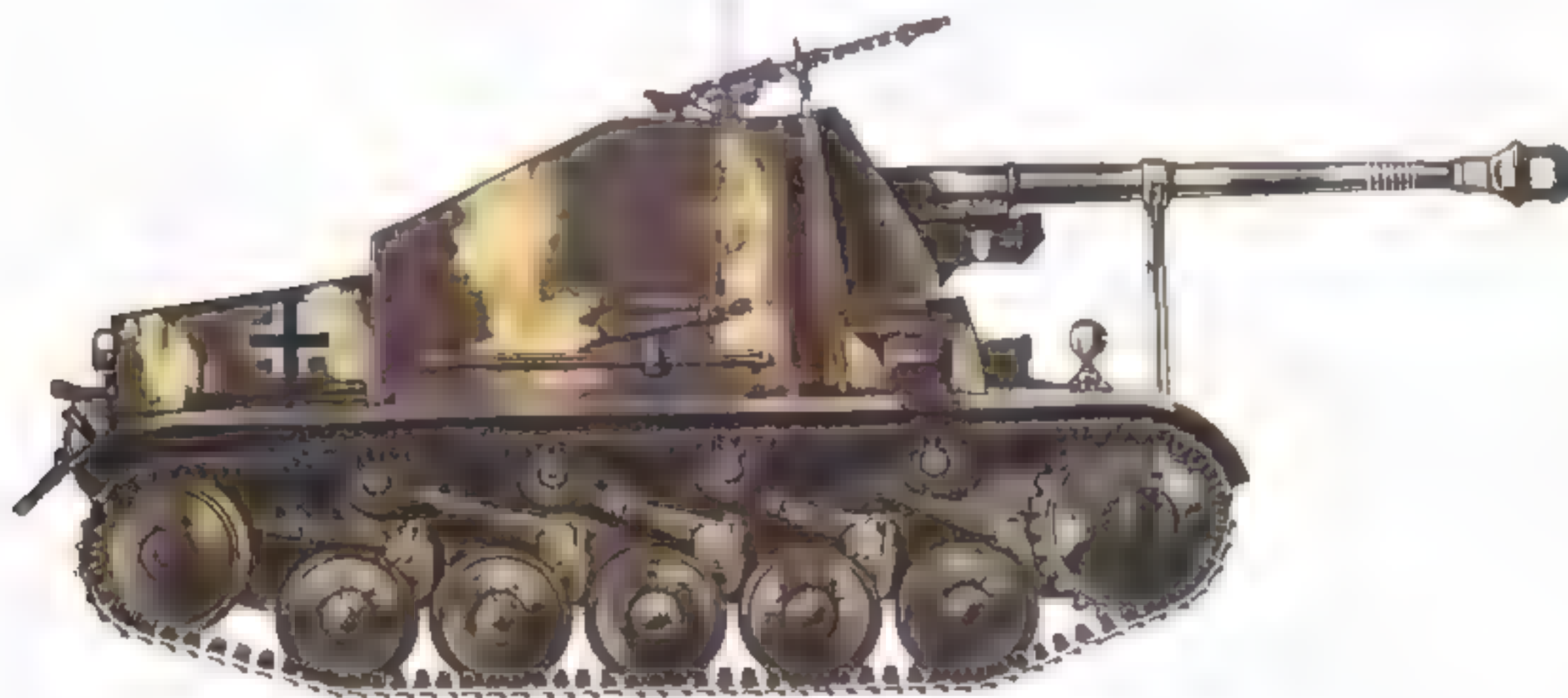
Geschuetzwagen I - V Hummer (SdKfz 165)



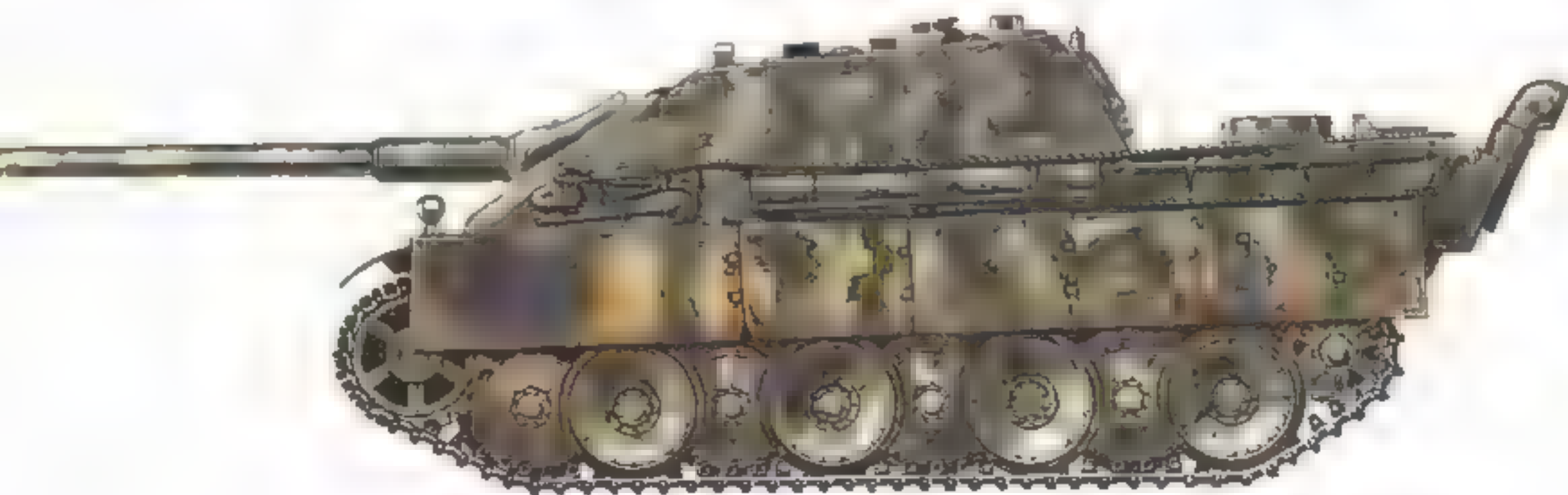
Sturmgeschuetz III Ausf D (SdKfz 142)



Sturmpanzer IV Brummbaer (SdKfz 166)



7.5cm PaK 40/2 auf Sfl II 'Marder II' (SdKfz 131)



Jagdpanzer V Jagdpanther (SdKfz 173s)

Tank Hunters (Jagdpanzers)

The increased casualties and lack of effectiveness of the traditional towed anti-tank guns led at first to the simple self-propelled mounts described in the section on anti-tank guns. These self-propelled guns had mobility and could be brought into action without loss of time. However, they lacked protection for the crews, as did the wheeled anti-tank guns, but they were without the latter's facility for concealment. In 1942 the long 7.5cm cannons were first mounted in the assault vehicles (Sturmgeschuetz) and this development introduced a highly successful anti-tank weapon which had not only mobility but also the protection of armour and a low silhouette. This basic concept was now developed and improved so that a new class of vehicle was introduced able to carry out the dual role of both tank destroyer and assault gun. These vehicles were known as Jagdpanzers. The powerful anti-tank gun was fitted in the lowest possible vehicle with the heaviest armour it was capable of carrying. Special care was taken to increase protection with sloped armour.



7,5cm Pak 39 L 48 auf Pz.Jäg 38(t) Hetzer (SdKfz 138 2) or Jagdpanzer 38(t) or JagdPz 38 fuer 7,5cm Pak 39 L 48

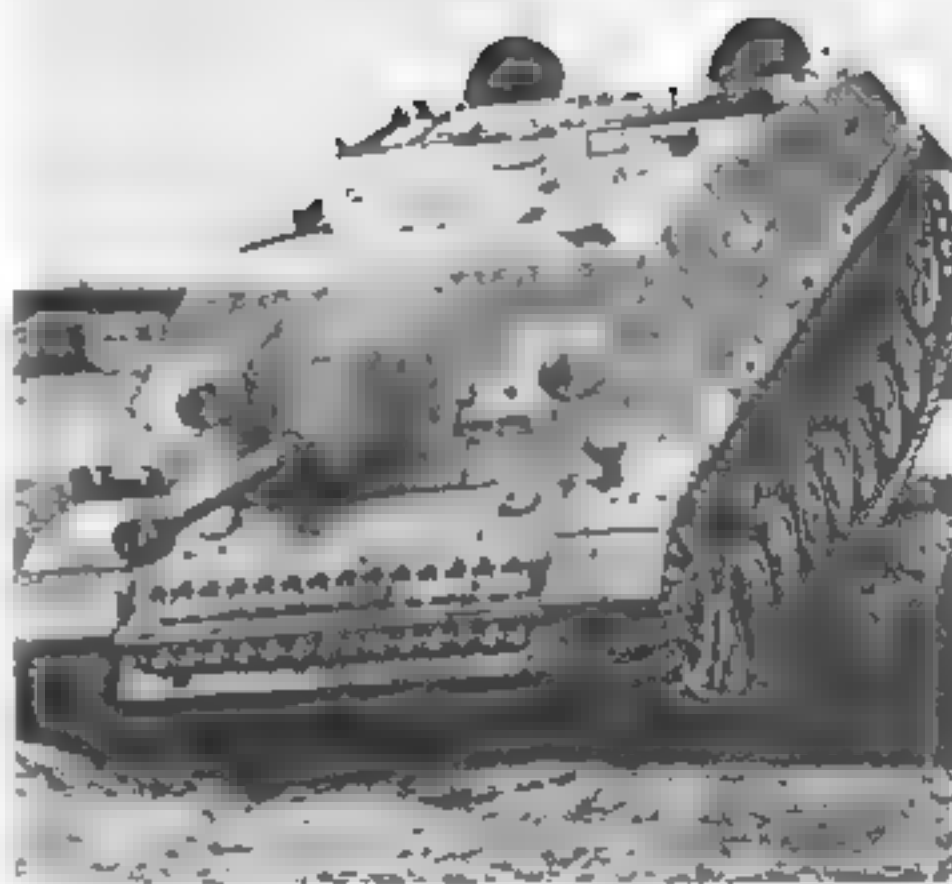
The large production facilities of the Czechoslovak Praga and Skoda works were used to mass produce the Hetzer from 1943. The anti-tank gun was the same 7,5cm Pak 39 L 48 mentioned above. This light chassis had less armour and a very cramped interior but proved to be effective support for the infantry units to which it was attached. Some 1,177 were manufactured before the end of the war including about 100 guns with rigid mountings. These latter guns were fitted in a simple ball mount and possessed none of the usual recoil gear as the recoil forces were absorbed by the vehicle itself. While the guns performed successfully, difficulty was encountered with the sighting devices - the solution had not been introduced by 1943. Crew 4. Weight 15.8 tons.



Left Panzer IV 70 Sdkfz 162 L or Jagdpanzer IV mit 7,5cm Stuk 42 L 70

the vehicle 180mm and the long overhang of the gun

Produced in late 1944 this vehicle was intended to replace the Panzerkampfwagen IV hence the designation 151st Jagdpanzer IV chassis were produced and were equipped with both types of guns Crew 4. Weight 24.5 tons



Jagdpanzer IV Ausf. F (7,5cm Pak 39 L 48) Sdkfz 162
or Panzerjäger 39

In an effort to improve the StuG III concept this vehicle was designed upon the chassis of the PzKpfw IV which could be manufactured in large numbers. Sloped armour and substantially improved gun mounting and vision characteristics characterised the design. From an early stage it was intended to use the 7.5cm StuK 42 L 70 cannon based upon the high velocity weapon of the Panther tank, but delays and shortages in 1943 led to the introduction of this vehicle late in that year armed with the 7.5cm Pak 43 L 48 which was based upon the 7.5cm StuK L 48. Late production models dispensed with the muzzle brake and the machine gun port on the left hand side of the front plate. Crew 4. Weight 23.6 tons.



Late production model of the Jagdpanzer IV equipped with mild steel skirting plates (Schürzen) and coated with Zimmerit (an anti-magnetic compound to stop the attachment of magnetic demolition charges)



Right Panzer IV 70

Late production model with minor modifications and three return rollers

Mobile Flak Guns

Early versions of self-propelled anti-aircraft guns were made by the mounting of small calibre 2cm and 3.7cm Flak guns on wheeled and semi-tracked vehicles to give mobile anti-aircraft protection to transport and armoured convoys against Allied air attacks. These light weapons could also be used against ground targets, being provided with armour-piercing ammunition in addition to high explosive rounds.

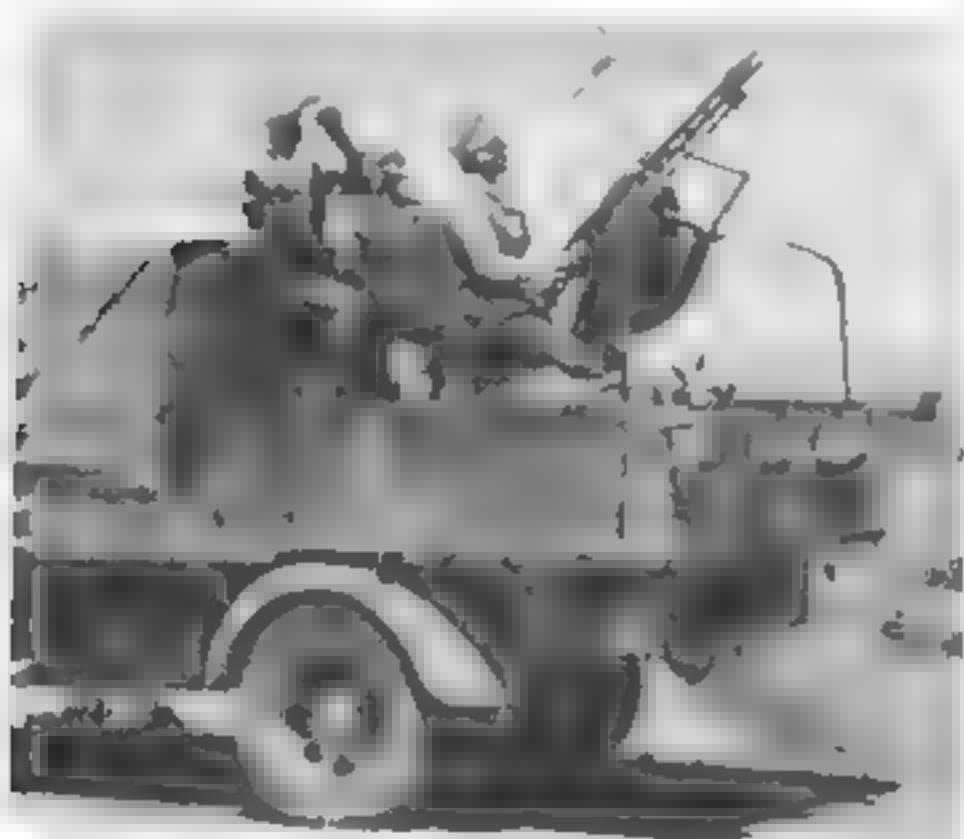
The first full-tracked vehicle to be used as a self-propelled mount for the anti-aircraft role appeared in 1943. This was the Flakpanzer 38(t) based on the chassis of the Czech 38(t) tank. It was followed by other models of Panzerflak with increased firepower, the Flakpanzer IV series that utilised the chassis of the Panzerkampfwagen IV. The final stage of development in this series

FLAK MACHINE-GUNS



Leichter Truppenluftschutz-Kraftwagen, Kfz 4

Used in motorised convoys for air defence, this was a light 4 x 4 German personnel car with the Zwillingslafette 36 installed in the rear compartment.



The Zwillingslafette 36 was a universal MG mount that could be adapted to fit most vehicles, including rail wagons. The picture shows the mount on a medium type truck.

was the leichte Flakpanzer IV Kugelblitz armed with two 3cm automatic cannon in an enclosed armoured power-operated turret. Only five of these vehicles had been built by the time the war ended.

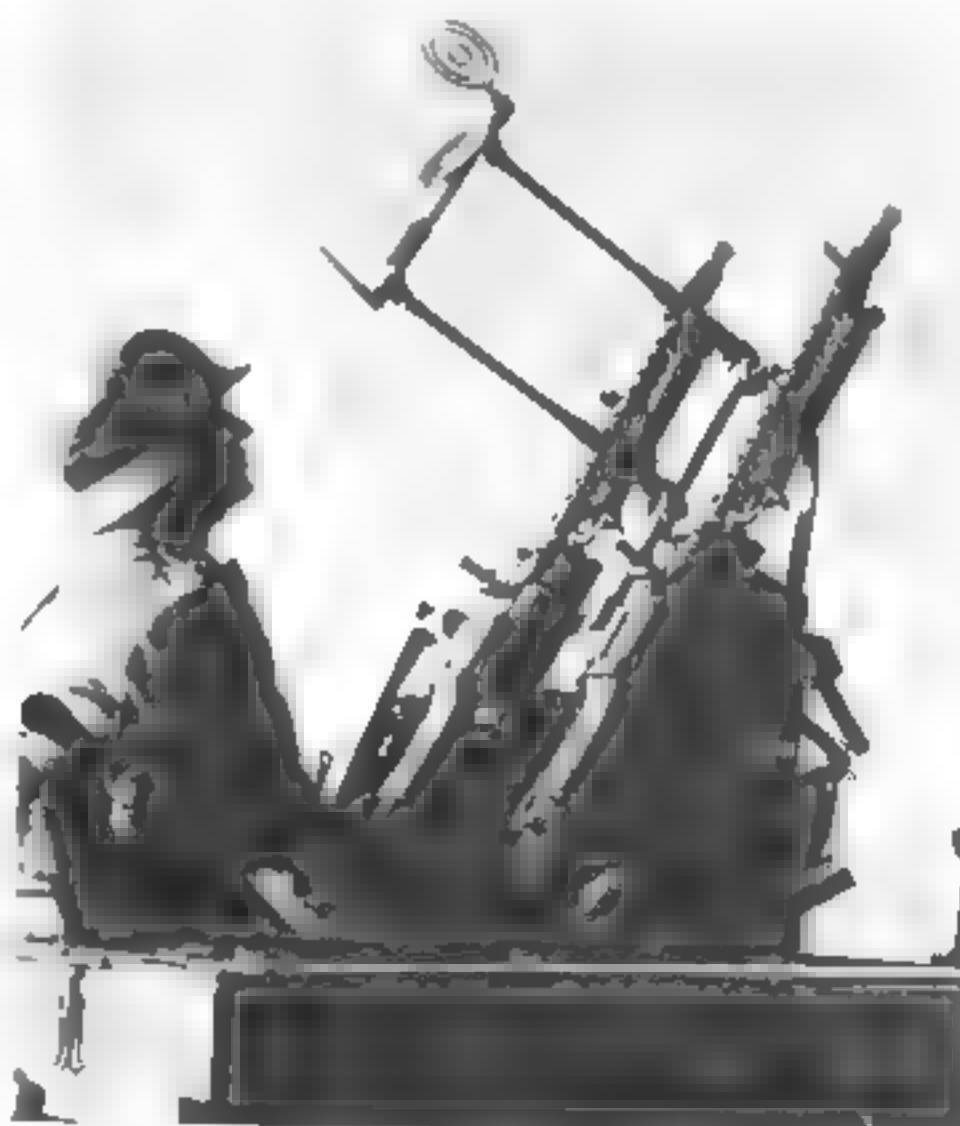
During the war, various attempts were made to make the 8.8cm Flak gun mobile by employing the 12- and 18-ton semi-tracked vehicles as self-propelled mounts for this equipment. Fourteen of the 18-ton vehicles were converted to carry the 8.8cm Flak 37. Designs were also projected to mount the 8.8cm gun on a full-tracked chassis. Only one of these vehicles was developed. Designated Flakpanzer fuer schwere Flak, this equipment was mounted on a composite chassis consisting of Panzerkampfwagen IV and semi-track suspension components.



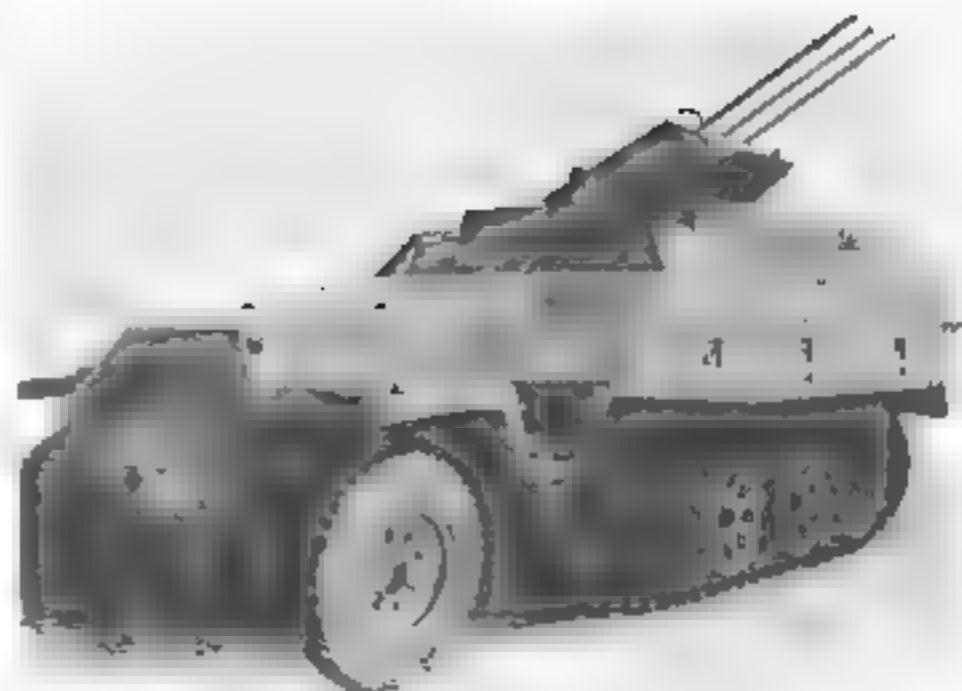
MG Doppelwagen 36

Used for anti-aircraft purposes by units on the march, the 7.92mm MGs in machine gun units were carried in a single axle horse-drawn vehicle known as the MG Doppelwagen. The MGs were mounted on a swivel seat and pedestal mount known as the Zwillingslafette 36. Twin machine gun mount Model 361. When used in this role, the MGs were equipped with a special anti-aircraft sight. The two ground tripods were carried strapped at the rear of the timber

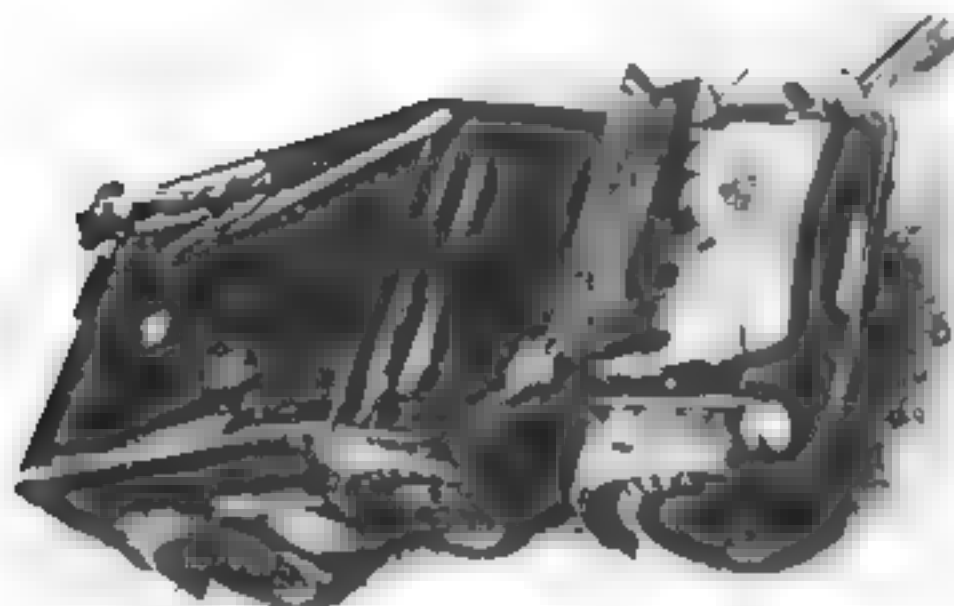
Zwillingslafette 36 close up



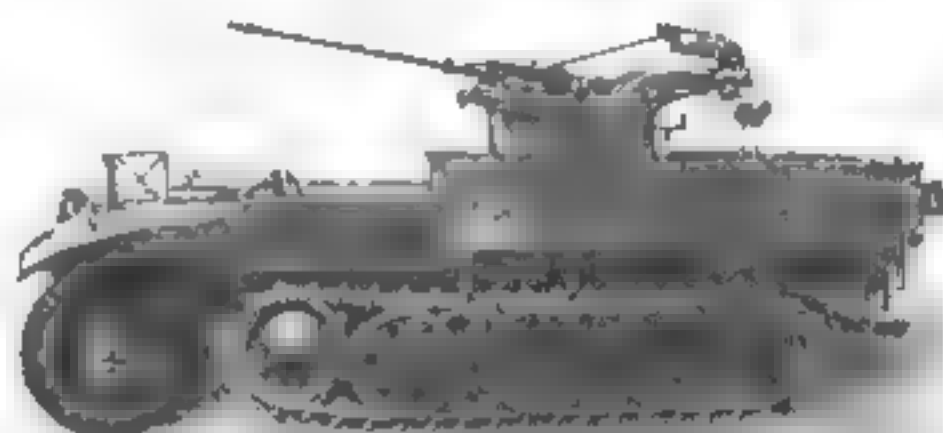
MG 151 15 oder 151 20 Drilling auf mSchtzPzWg Sdkfz 251 21
 Introduced in late 1944 this equipment consisted of 1.5cm MG 151 15 or 2cm MG 151 20 aircraft guns on a pedestal triple mounting. This weapons system was installed on a 3-ton armoured semi-tracked personnel carrier Sdkfz 251. Though designed for light anti-aircraft defence in armoured convoys the guns could also be used in an anti-tank role. Crew 4-6.



LIGHT FLAK GUNS



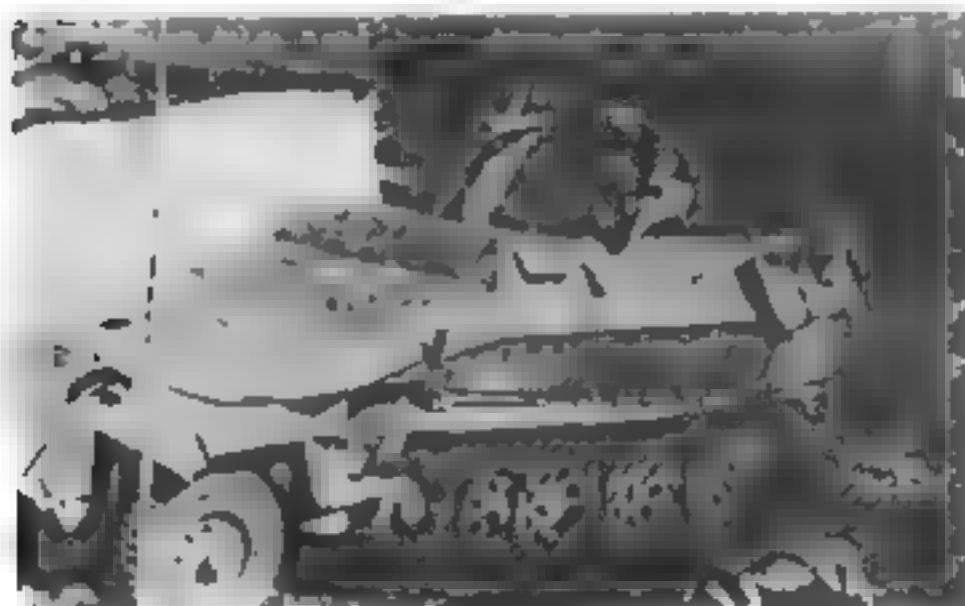
2cm Flak 30 als Selbstfahrlafette auf E-Fahrgestell vPkw
 2cm anti-aircraft gun model 30 mounted on the heavy 4 x 4 Auto-Linn personnel car fitted with a special body with drop-down mechanism of rear body. Used mainly by Luftwaffe units for anti-aircraft defence.



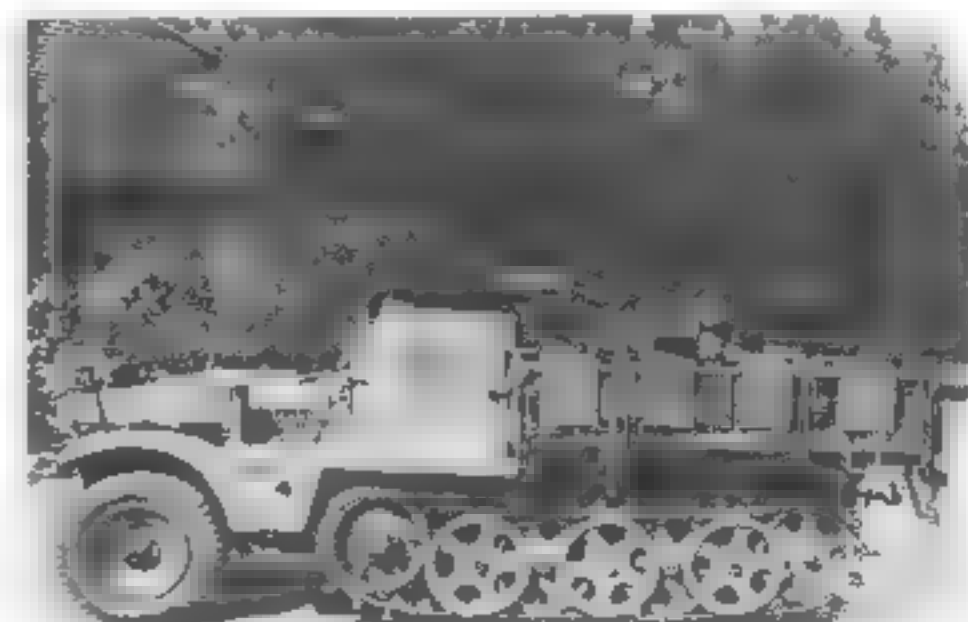
Leichte Selbstfahrlafette (Demag D11, 3) 2cm Flak 30
 Experimental mounting of the 2cm Flak gun on the third prototype vehicle of the Sdkfz 10 series to test the feasibility of adopting this vehicle as a standard self-propelled carriage for the 2cm Flak. Crew 11. Weight 5 tons.



Leichte Selbstfahrlafette (2cm Flak 30) Sdkfz 10 4
 2cm Flak gun mounted on 1-ton semi-tracked vehicle Sdkfz 10 4. The gun was dropped when in action to facilitate transport. Spare ammunition was carried in a towed two-wheeled limber. (Bundesarchiv Koblenz)



Mittlerer Schuetzenpanzerwagen (2cm)
 This equipment consisted of the 2cm Flak 30 mounted on an unmodified Sdkfz 251. Only a limited number of these vehicles were converted.



Leichte Selbstfahrlafette (2cm Flak 38) Sdkfz 10 5
 This was a modified version of the Sdkfz 10 4 with an armoured hull and armed with the 2cm Flak model 38, a weapon with an increased rate of fire. Crew 7. Weight 5.5 tons.



2cm Flak 38 auf Mannschaftskraftwagen

This was a standard conversion, and consisted of the 2cm Flak gun mounted in the rear compartment of a 6 x 4 light truck (Type Krupp). Crew 4.



2cm Flak 38 auf leight Lw Kfz 70

This was a standard conversion, and consisted of the 2cm Flak gun mounted in the rear compartment of a 6 x 4 light truck (Type Krupp). Crew 4.



Luftwaffe, mSchtzPzWg (2cm Flak 38)

This was a standard conversion, and consisted of the 2cm Flak gun mounted in the rear compartment of a 6 x 4 light truck (Type Krupp). Crew 4. To allow the gun to be traversed, the sides of the body were redesigned so that the sides of the vehicle could be folded down to allow full traverse of the gun. (Bundesarchiv Koblenz)

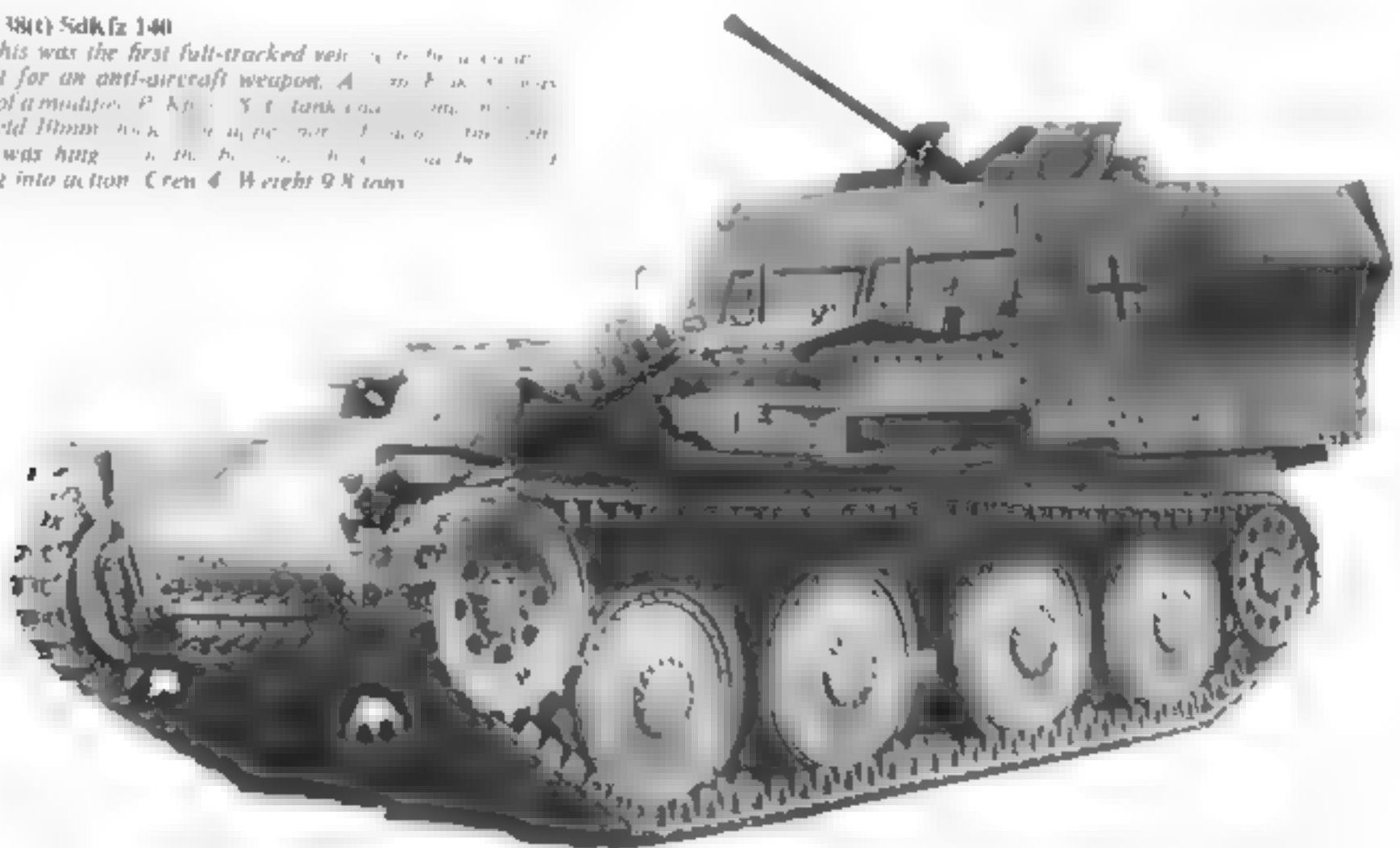


mSchtzPzWg mit 2cm Flak 38 SdKfz 251 17

This was a standard conversion, and consisted of the 2cm Flak gun mounted in the rear compartment of a 6 x 4 light truck (Type Krupp). Crew 4. The gun was mounted on a raised platform behind the driver's compartment with the gun barrel projecting over the armoured cab of an SdKfz 251. Crew 4.

Leichte Flakpanzer 38(t) SdKfz 140

Built during 1943, this was the first full-tracked vehicle to be a self-propelled mount for an anti-aircraft weapon. A 2cm Flak 38 was mounted at the rear of a modified PzKpfw VI tank chassis, protected by an octagonal shield 10mm thick. The sides of the shield were hinged so that they could be folded outwards when going into action. Crew 4. Weight 9.4 tons.



MULTIPLE LIGHT FLAK GUNS



2cm Flakvierling 38 auf m 1 kw

This equipment appeared in 1943 and consisted of four 2cm quadruple anti-aircraft guns mounted on 4 x 4 or 4 x 2 truck chassis. The driver's compartment and the engine were armoured and the vehicle's sides could be lowered to allow full movement for the gun and crew.

A two-wheeled trailer was towed carrying extra ammunition.

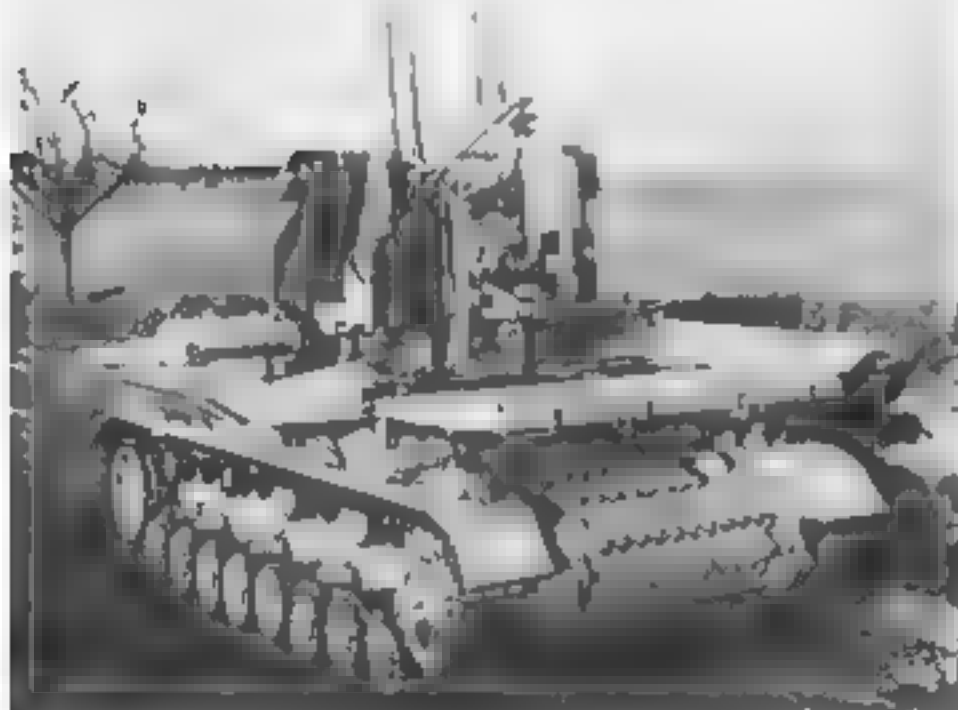
(Bundesarchiv Koblenz)



Mittlerer Zugkraftwagen 8(t) mit 2cm Flakvierling 38 Sdkfz 7 1 or Selbstfahrlafette 2cm Flakvierling 38

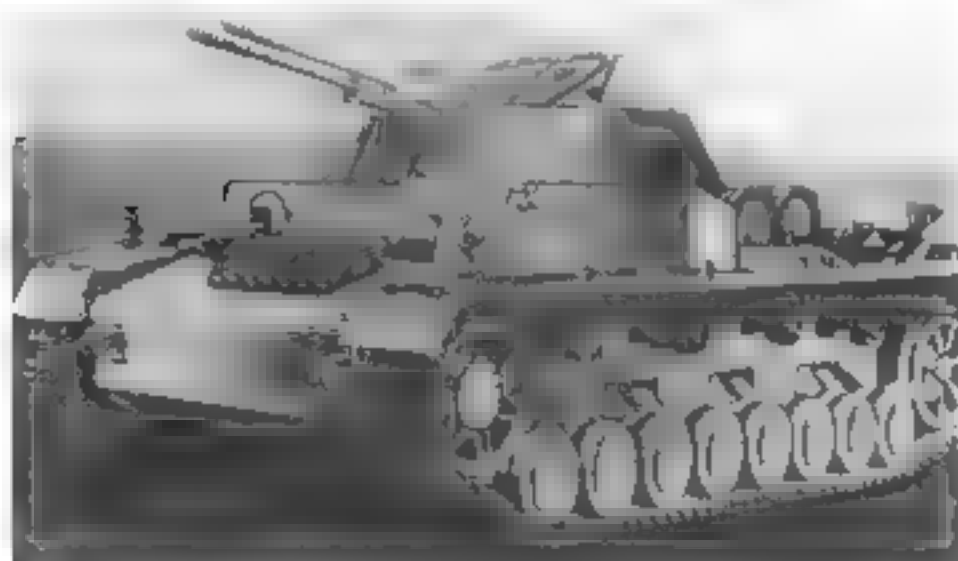
This equipment consisted of the 2cm Flakvierling 38 a quadruple version of the 2cm Flak 38 mounted on the rear of the 8-ton semi-tracked vehicle Sdkfz 7. Developed in 1941, the combination of the four guns under one fire control increased the rate of fire to 800 rpm. Crew 10. Weight 10 tons.

Late production m/zgkw 8(t) mit 2cm Flakvierling 38 with gun shield and the front of the vehicle armoured. (Bundesarchiv Koblenz)



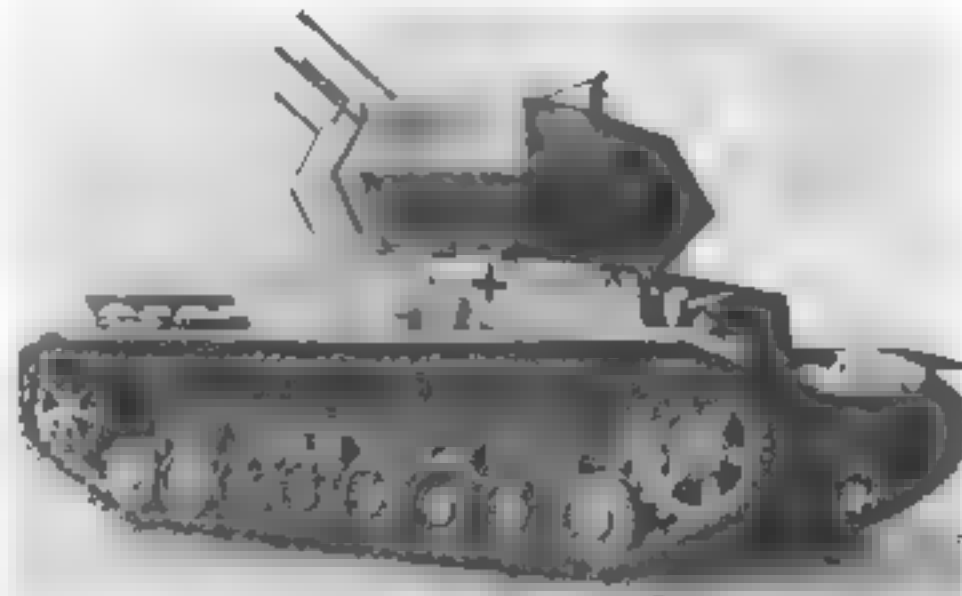
Flakpanzer IV, (2cm Flakvierling 38) auf Fgst PzKpfw IV Möbelwagen

For the defence of a main tank division from incoming bomber attacks anti-aircraft weapons were mounted on the chassis of the PzKpfw IV. In March 1943, the 2cm Flakvierling 38 was mounted on the chassis of the PzKpfw IV Ausf H. The gun and crew were protected by four hinged 10mm armoured plates which were lowered in action to allow full traverse. A counter-part of this vehicle mounted the 3.7cm Flak 43. Crew 5. Weight 24 tons.



leichte Flakpanzer IV (3cm) Kugelblitz

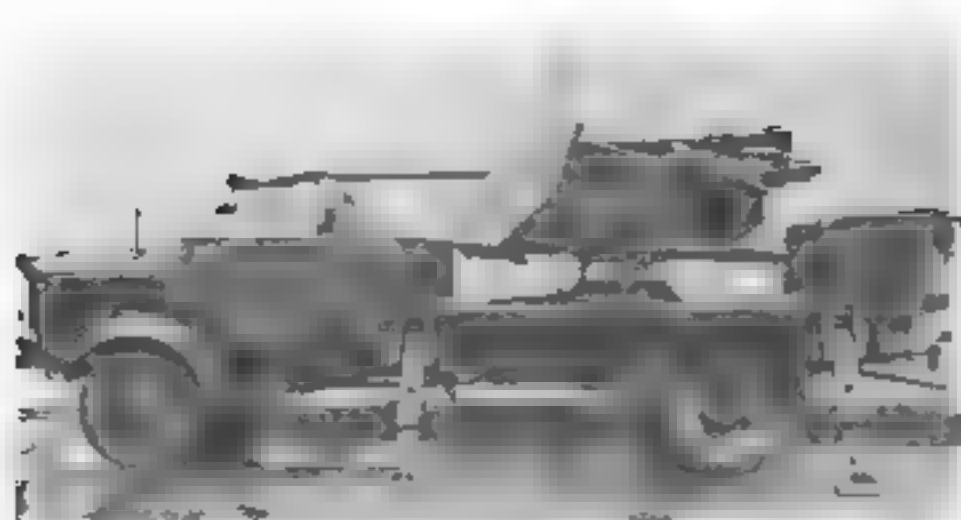
This variant was designed to protect the Flakpanzer and was designed to give complete protection to the gun crew and to mount an armament with greater penetration power against the armoured fighter-bombers. The PzKpfw IV chassis was also used for this development, which carried an armoured power-operated turret. Mounted within the turret were two Mk 103 38 aircraft guns, these were quickfiring cannon with automatic belt feed. Only five of these vehicles were built by the end of the war. Crew 5. Weight 24 tons.



Flakpanzer IV (2cm) auf Fgst Pz IV 3 Wirbelwind

This variant was developed in 1943 and entered service at the end of 1943. Based on the chassis of the PzKpfw IV Ausf J, the 2cm quadruple guns were now mounted within a 16mm armoured revolving open turret. A counter-part of this vehicle the Ostwind mounted the 3.7cm Flak 43. Crew 5. Weight 22 tons.

MEDIUM FLAK GUNS



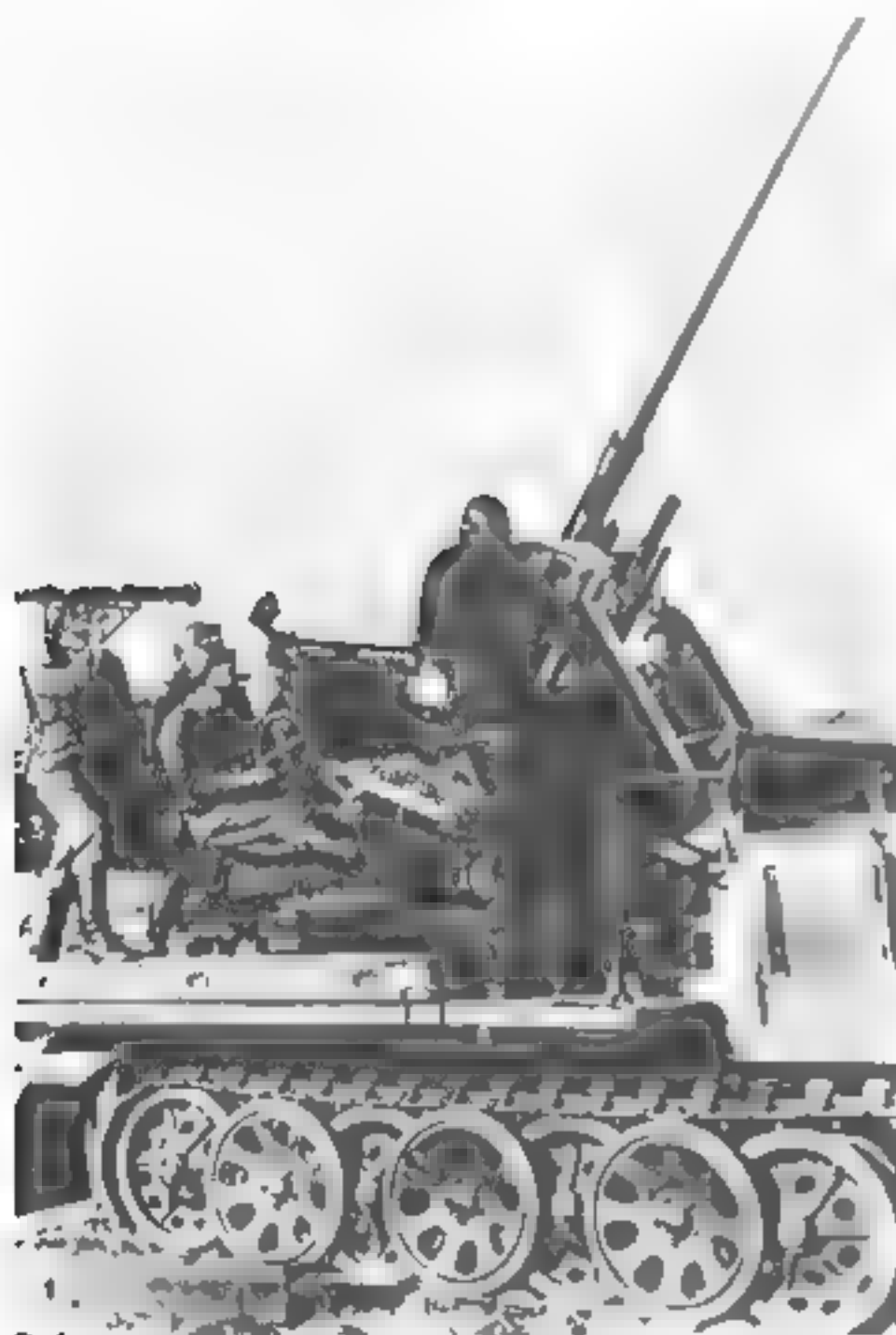
3,7cm Flak 36 auf Lkw Mercedes-Benz, 4500A

3.7cm Flak mounted on the chassis of the 4 x 4 Mercedes-Benz 4.5-ton cargo truck Type 4500A. The vehicle was considerably modified for this adaptation.



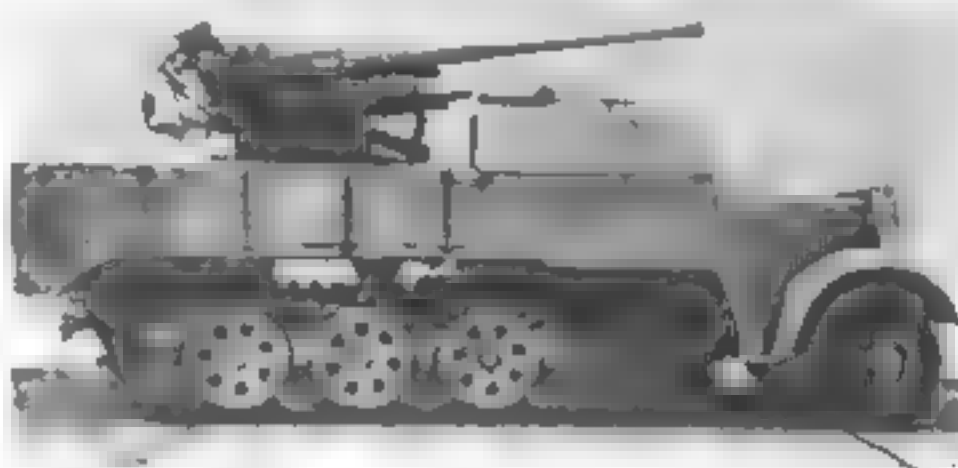
3,7cm Flak 43 auf Schwerer Wehrmachtschlepper

3.7cm Flak 43 mounted on the chassis of the SWS half-track, a vehicle that had been designed to replace the 5-ton semi-tracked vehicle SdKfz 6.



mZgkw 8t mit 3,7cm Flak 36 SdKfz 7.2

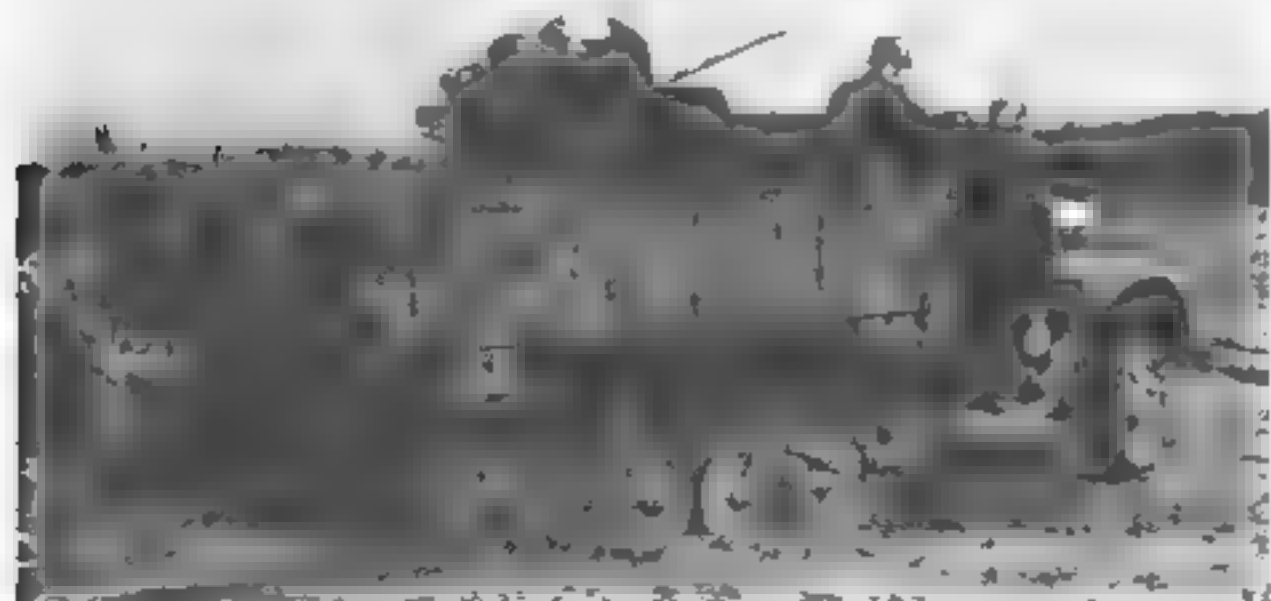
3.7cm Flak mounted on the chassis of the 8-ton semi-tracked vehicle SdKfz 7.2.



Reworked version of the SdKfz 7.2 with armoured cab

3,7cm Flak 36 (Sf) auf Zugkraftwagen 5t SdKfz 6.2

3.7cm Flak 36 mounted on the 5-ton semi-tracked vehicle SdKfz 6.



3,7cm Flak 36 auf Maultier

This equipment consisted of the 3.7cm Flak gun mounted on a Ford 2-ton semi-tracked cargo vehicle (Gleisketten-Lkw 2t (Maultier).

Bundesarchiv Koblenz)



3.7cm Flak 43 auf St IV Möbelwagen

This was a similar carriage to that used by the Wirbelwind, but with the 3.7cm Flak 43 in place of the 3.7cm Flak 36. Both vehicles appeared at the same time.

3.7cm Flak 43 auf St Ostwind

A similar vehicle to the Wirbelwind, but mounting the 3.7cm Flak 43 in the armoured turret.

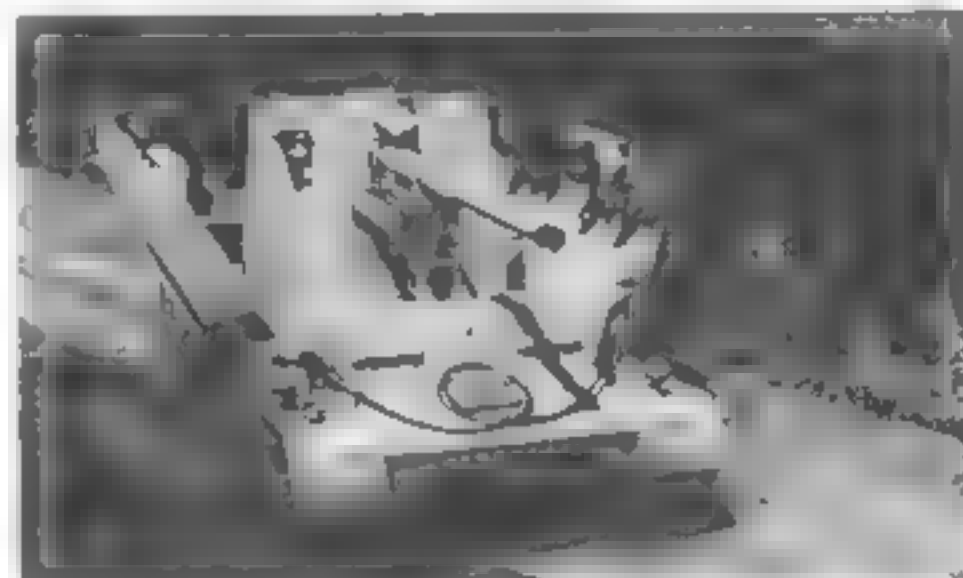


HEAVY FLAK GUNS



8.8cm Flak 37 (Sf) auf Zugkraftwagen 181

Though the 8.8cm Flak gun had in 1940 been mounted on a vehicle to create a mobile mount for this gun, this conversion had been developed purely as an anti-tank weapon. In 1943 a series of 14 of the 18-ton semi-tracked vehicles Sdkfz 9 were converted to carry the 8.8cm Flak 37 for the defence of Pak and Flak. The cab and engine compartment were protected by armour shields which could be lowered. These could be lowered to increase traction. Crew 9-10. Weight 25 tons.



Flakpanzer für schwere Flak (8.8cm Flak 41) or 8.8cm Flak 41 auf Sonderfahrzeug

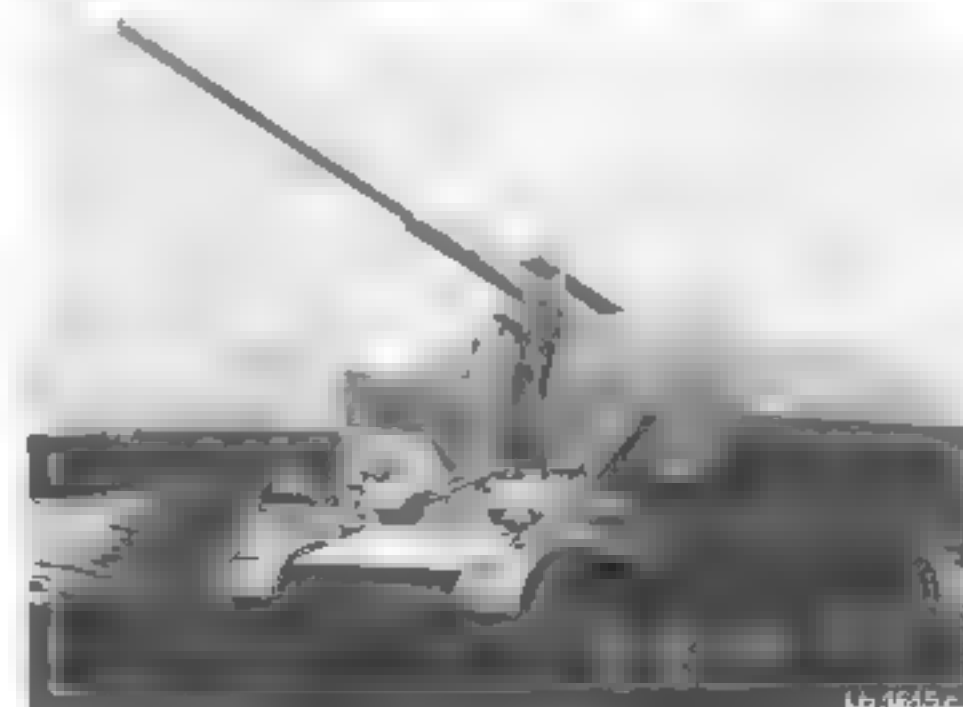
In 1943 this experimental conversion of the 8.8cm Flak 41 was mounted on a full-track chassis consisting of Panzer IV and semi-track chassis. The gun was protected by armour shields which could be lowered. Crew 8. Weight 20 tons.

Below left:

8.8cm Flakpanzer with the three protective mounted shields lowered

8.8cm Flak 41 auf Sonderfahrzeug

This was a conversion of the 8.8cm Flak 41 mounted on a full-track chassis consisting of Panzer IV and semi-track chassis. The gun was protected by armour shields which could be lowered. Crew 8. Weight 20 tons.



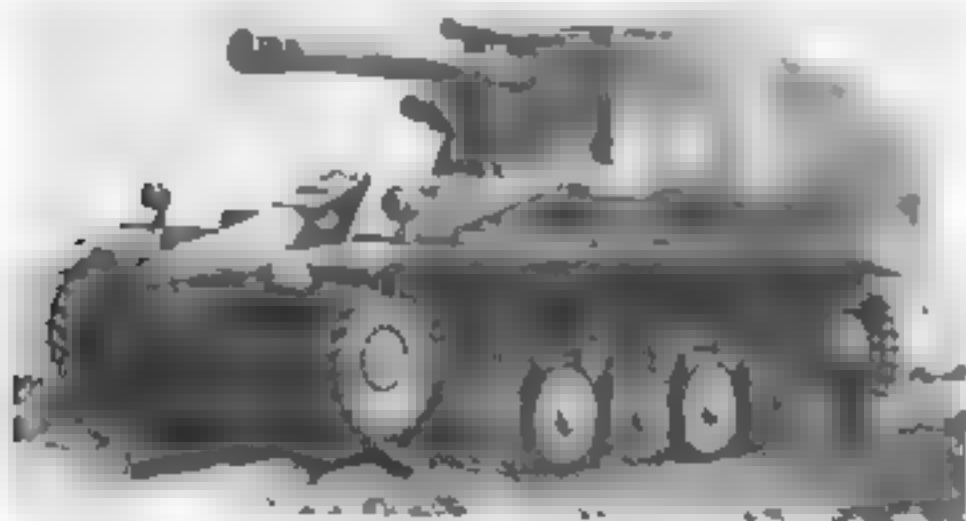
Mobile Field Artillery

Medium and Field self propelled artillery was introduced about the middle of 1942. Employed with the armoured and motorised divisions, various models of the 10,5cm and 15cm guns mounted on German and captured French tank chassis were used.

During 1942, 43 plans were made for the development of a new range of weapons called Waffenträger (Weapon Carriers). These equipments were to consist of Anti-tank, Field and Medium guns mounted on their original field carriages, the complete units to be carried on a lightly

armoured tracked chassis and, where possible, to be dismountable as field pieces, power-driven mechanism being carried for this purpose. To be constructed with standard tank components, the Weapon Carriers consisted of three groups, Heuschrecke (Grasshopper), Grille (Cricket), and a third series based on the chassis of the modified 38(t) Czech tank. Though many of these projects existed as wooden models or as designs on the drawing board, only a few prototype machines were built.

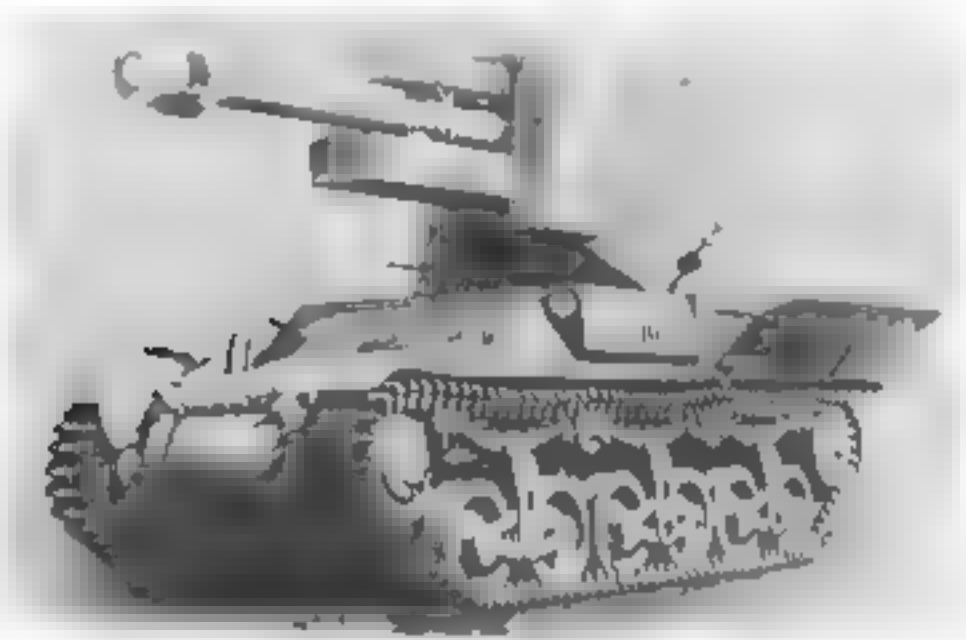
LIGHT FIELD HOWITZERS



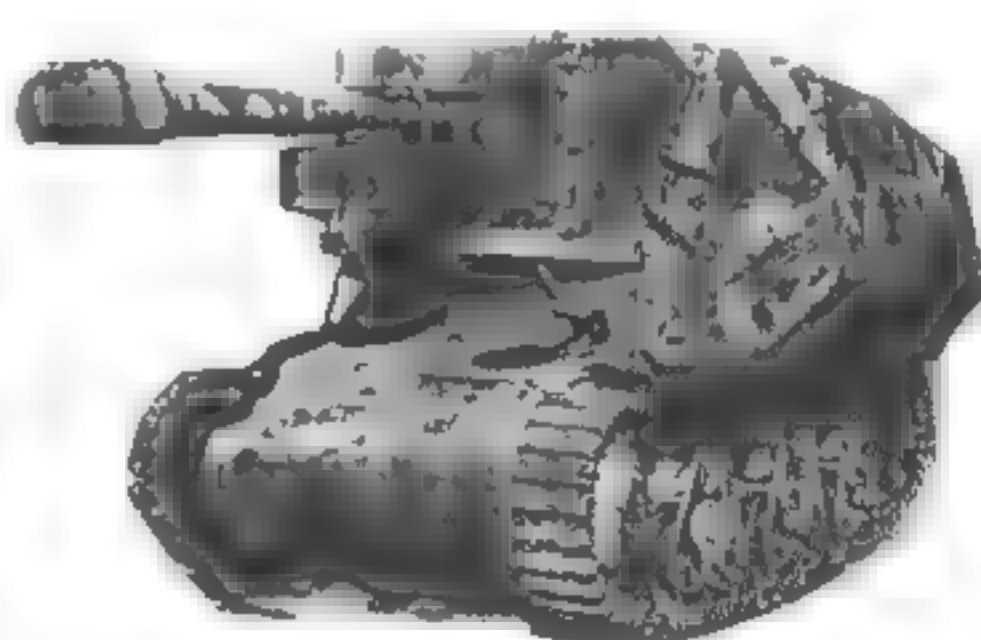
10.5cm leFH 18 2 auf Fgst PzKpfw II (SdKfz 124) Wespe
or **GW II fuer 10.5cm leFH 18 1 Wespe**
Introduced in 1942 for employment with the armoured divisions, this equipment consisted of the 10.5cm gun howitzer model 18 mounted on the Panzer II Ausf. F chassis. The howitzer was mounted on a fixed cradle at the front of the chassis. Crew 5. Weight 11.5 tons.



10.5cm leFH 16 auf GW FCM (F)
This conversion consisted of the 10.5cm gun howitzer model 16 mounted on the chassis of the French FCM tank. Ten of this model were produced and used during 1942. Crew 4-5. Weight 13.5 tons.

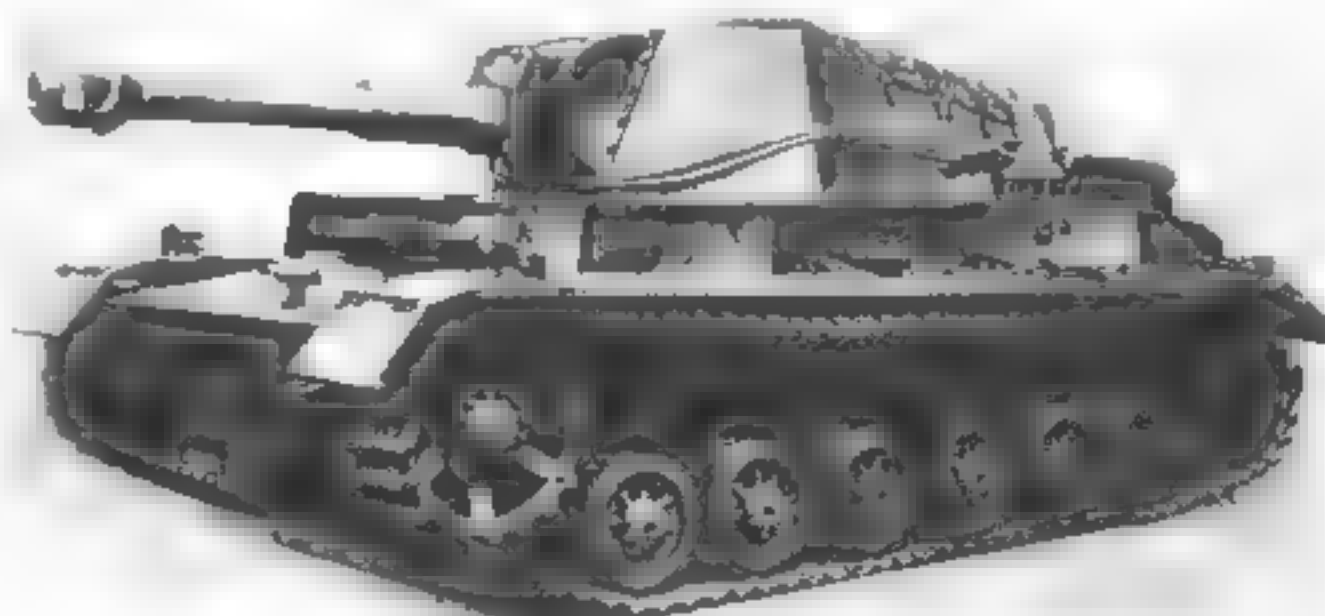


10.5cm leFH 18 auf GW Lorraine Schlepper (F)
This lightly armoured mobile gun howitzer appeared in mid 1942. Based on the French Lorraine carrier chassis 24 were produced. Crew 4-5. Weight 8.5 tons.



10.5cm leFH 18 auf GW 39H (F)
or **10.5cm Panzerhaubitze 18 auf SdKfz 39H (F)**
Based on the chassis of the French Hotchkiss tank type H39 forty-eight of this type appeared during 1942. Crew 4-5. Weight 13 tons.

leFH 18 1 (Sd) auf GW IVb
or **10.5cm leFH 18 1 auf GW IVb SdKfz 165 1**
This was an experimental Panzerartillerie type using a shortened PzKpfw IV chassis as the self propelled mount. A total of eight vehicles was built during 1942 and these later saw service in Russia. Crew 5. Weight 17 tons.





10.5cm leFH 18 3 (Sf) auf G.W.B2 (f)

A limited number of this equipment was introduced into service in 1942. The 10.5cm gun was mounted in the front of an open topped turret placed well forward on a French Char B1bis hull. Crew 5 Weight 32 tons.

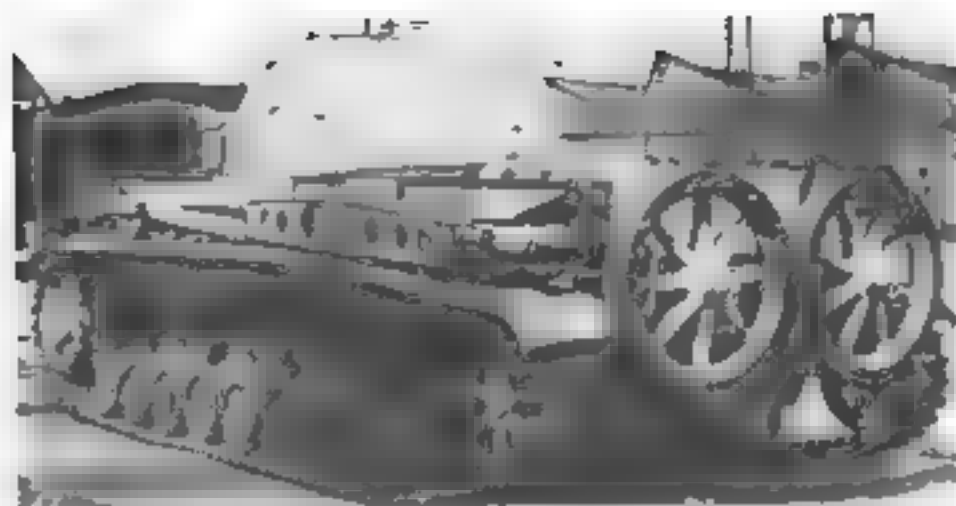


leFH 18 40 (Sf) or 10.5cm leFH 18 40 auf Fgst G.W. III IV

This vehicle was also developed as a Weapon Carrier and carried the gun, gun carriage and gun shield within an armoured superstructure. The gun mounted to fire forward within a limited traverse. The gun, carriage and trails were carried at the rear of the vehicle. When in ground action the weapon was removed by a hook and the gun, carriage and trails was assembled on the ground as a normal field gun.

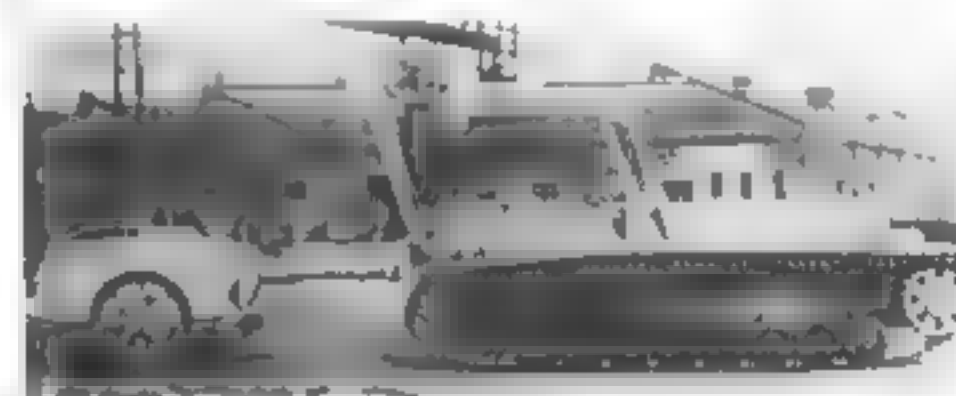
10.5cm K 18 auf Panzer-Selbstfahrlafette IVa or 10.5cm leFH 18 L 52 auf PzSfl IVa

Based on the chassis of the PzKpfw IV Ausf. D only 14 experimental vehicle were produced in 1942. The gun howitzer that was developed from the 10cm sFK 18 field gun was installed in an open fighting compartment. Tested in Russia this equipment proved an failure. Crew 5 Weight 25 tons.

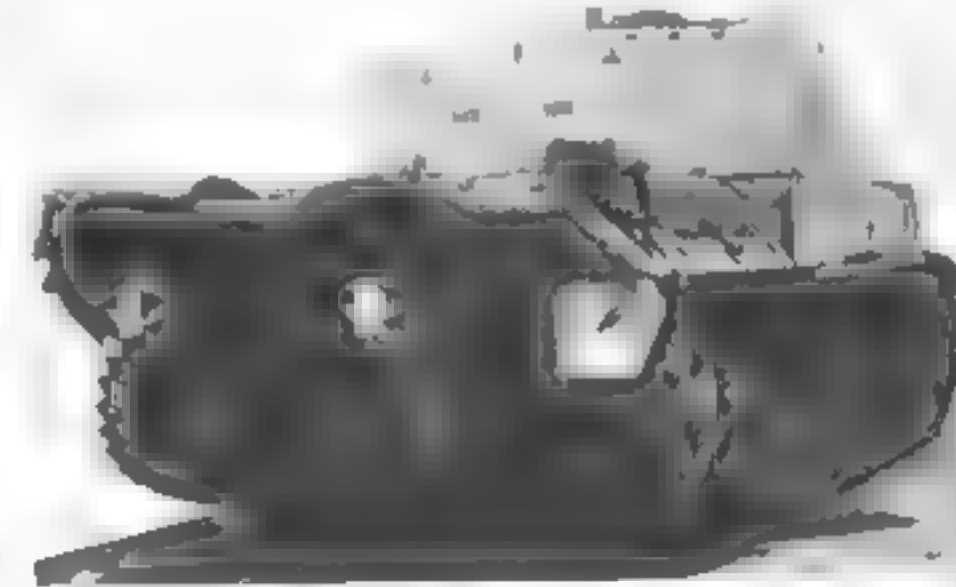


G.W. IVb fuer 10.5cm leFH 18 1 (Heuschrecke IVb) or 10.5cm leFH 18 1 L 28 auf Waffentrager, G.W. IVb

Based on the chassis of the PzKpfw IV eight of these experimental vehicles were built during 1942. The turret which was fully armoured and had a gun shield and tackle assembly that was mounted on a small frame and placed on the ground in the gun compartment. This turret was towed by a small tractor on the sides of the vehicle. The turret could, when required be towed behind the vehicle. This was accomplished by placing the turret on a small trailer frame with two wheels these components were also carried on the vehicle. When towing the turret the vehicle was used as an ammunition carrier. Crew 5 Weight 17.5 tons.



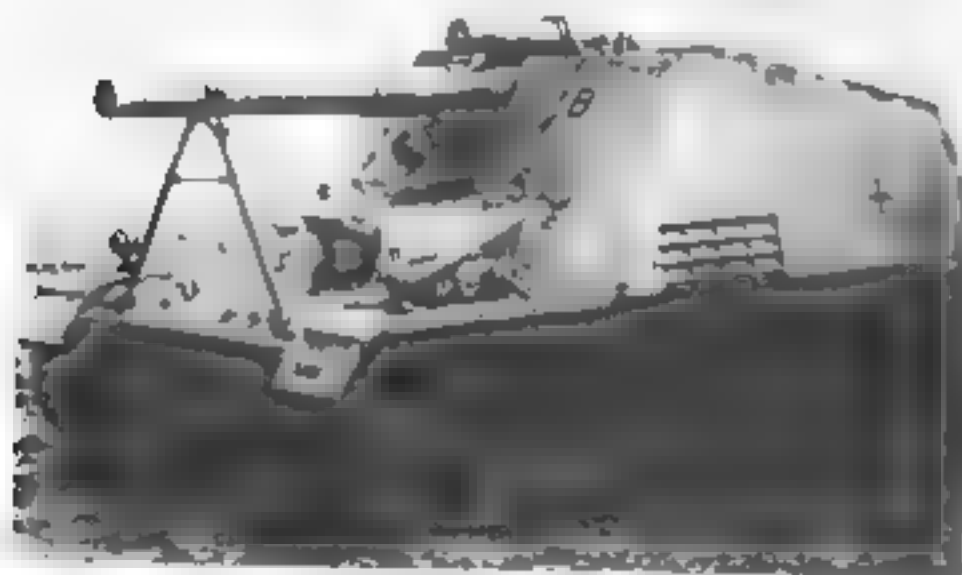
This picture shows the Heuschrecke IVb towing the turret on wheels. The gantry is still in the lifting position.



10.5cm K 18 auf Panzer-Selbstfahrlafette IVa or 10.5cm leFH 18 L 52 auf PzSfl IVa



HEAVY FIELD ARTILLERY



15cm Panzerfeldhaubitze 183 auf G.W. III IV Sdkfz 165 (Hummel)
 or 15cm schwere Panzerhaubitze 183 (Sf) auf Fgst PzKpfw III IV
 or Geschützwagen III IV Hummel

Based on a self-proclaimed "muzzle" from the P-40 III and IV series. Early versions were equipped with muzzle brake; these were later eliminated. From mid 1944 the Hummel's compartment was redesigned to a straight front Crew 5 W. 1.



A late production Hummel with the redesigned front superstructure.

Warps



15cm sFH 13 Selbstfahrlafette Lorraine Sdkfz 135 I
or 15cm sFH 13 auf GWL 85 (II)

[illegible]

*This work at Imperial
A ground pressure and better*

SUPER-HEAVY ARTILLERY

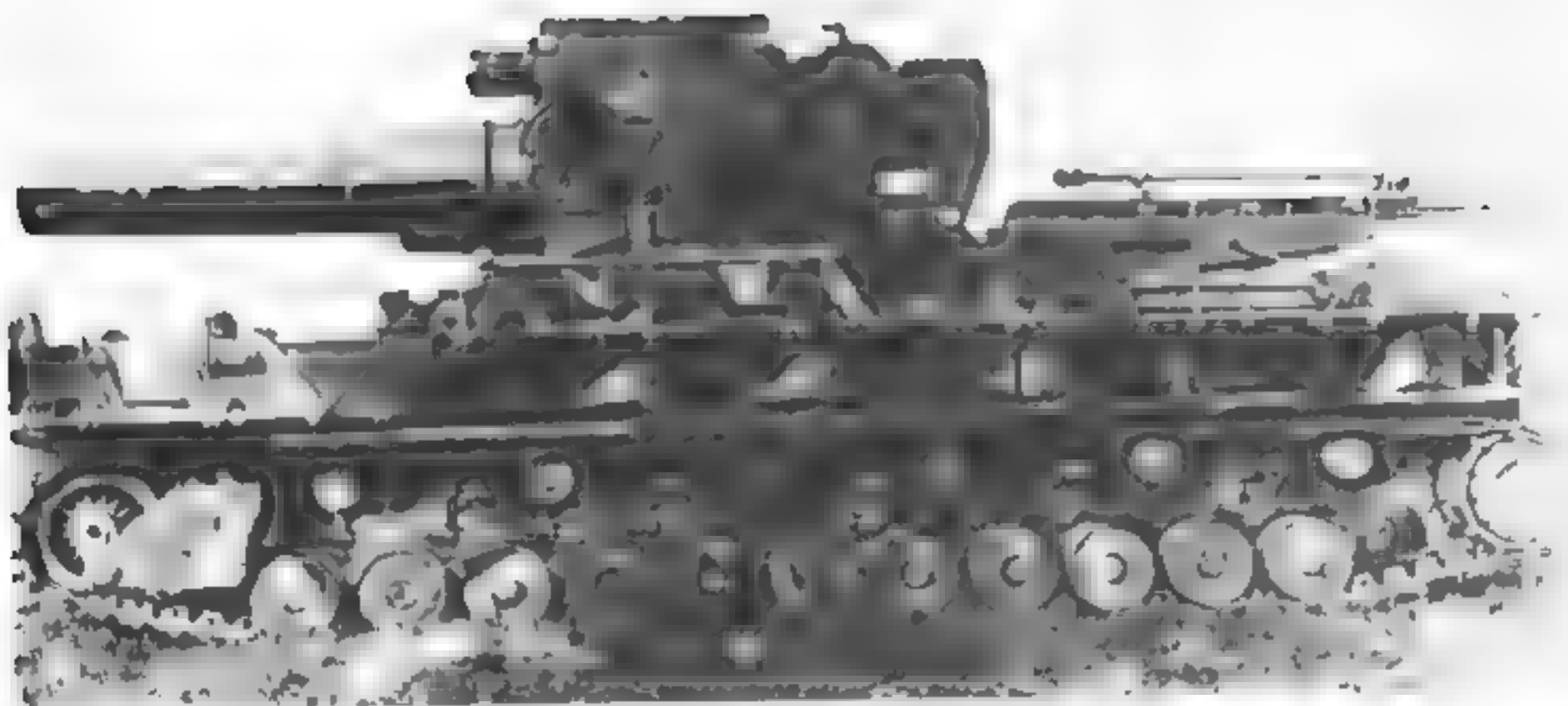


Grille 17 21 fuer 17cm K. 18 oder 21cm Mrs 21

Designed as a mobile mount for the 17cm K 18 gun, the M. 21 heavy howitzer this consisted of a lens barrel (K 18) mounted on a chassis with a built-up superstructure (M. 21) which was completed by the end of the war. Crew 8. Weight 38 tons.



H nodes $n): n_f) \quad n_i) \quad f_f) \quad f_i) \quad r) \quad t_f)$



60cm Moerser (Geraet 040) and 54cm Moerser (Geraet 041) Karl

This was the biggest weapon to be mounted on a self-propelled chassis. In 1937 the first of the 60cm series appeared in 1939. This equipment was designed to penetrate the armor of the heaviest tanks. It was used on the Russian Front participating in the siege of Sevastopol, at Brest-Litovsk and later in the Warsaw rising.

Six of the 040 equipments were built having two different tracked systems, either eleven twin road wheels or eight twin road wheels and eight twin return rollers. To increase the range of these weapons, some of the 040 equipments in 1942 were re-equipped with new 54cm howitzers, these being interchangeable with the 60cm barrel, and were re-designated as 041.

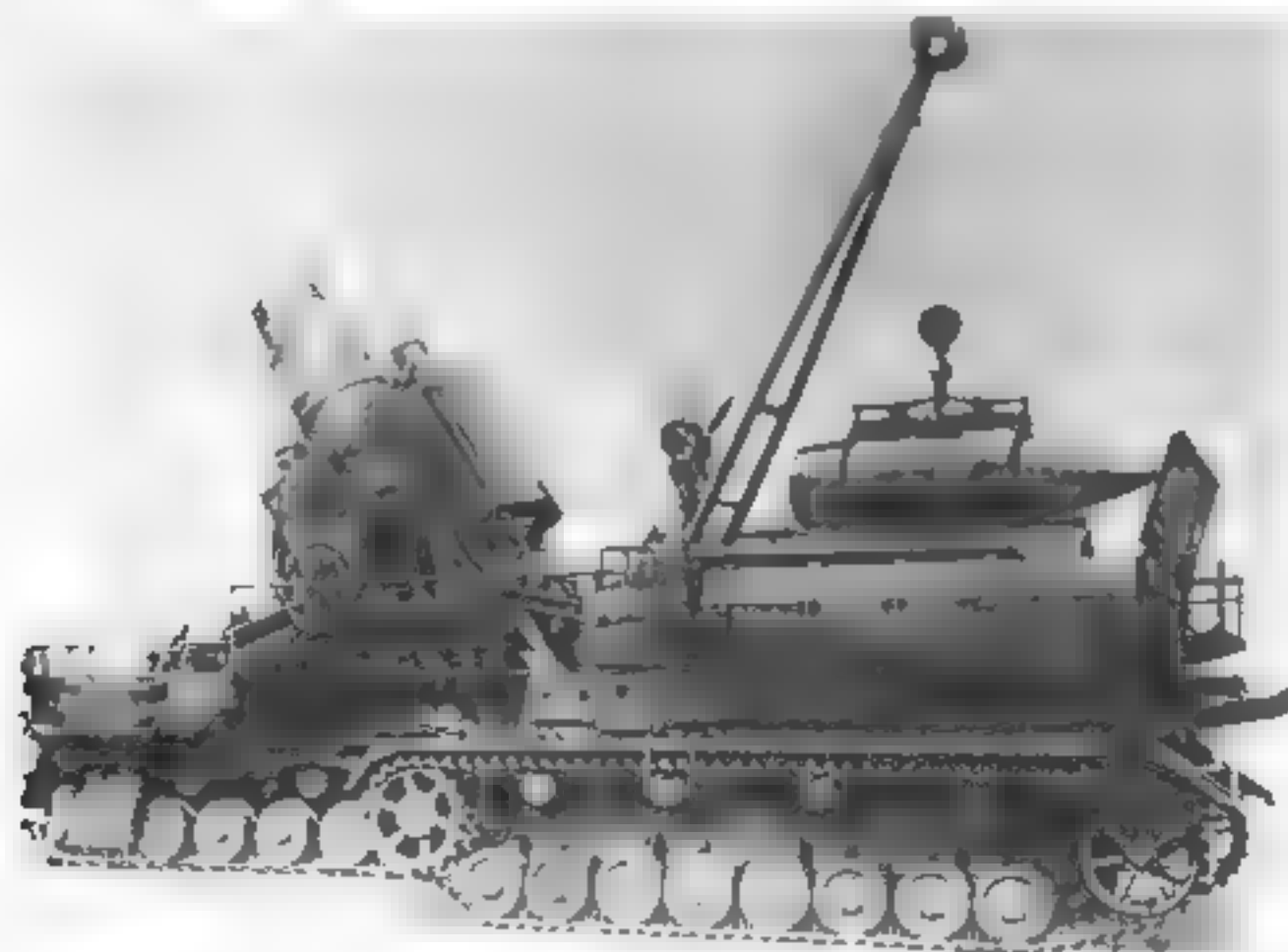
Because of the size of these guns special means were provided for transporting them over the front. They could be negotiated as a self-propelled unit. For transporting by rail the unit was suspended between two special railway trucks by means of a special steel truss. For movement by road, the equipment was partially disassembled and transported in several parts.

To supply ammunition to these guns, a special transport vehicle was developed, based on the PzKpfw IV Ausf. F chassis. This was equipped with a 5-ton crane to lift the three-ton 54cm howitzer barrel and transport it on the loading tray of the howitzer.

Weight 60cm Moerser 125 tons Weight 54cm Moerser 100 tons

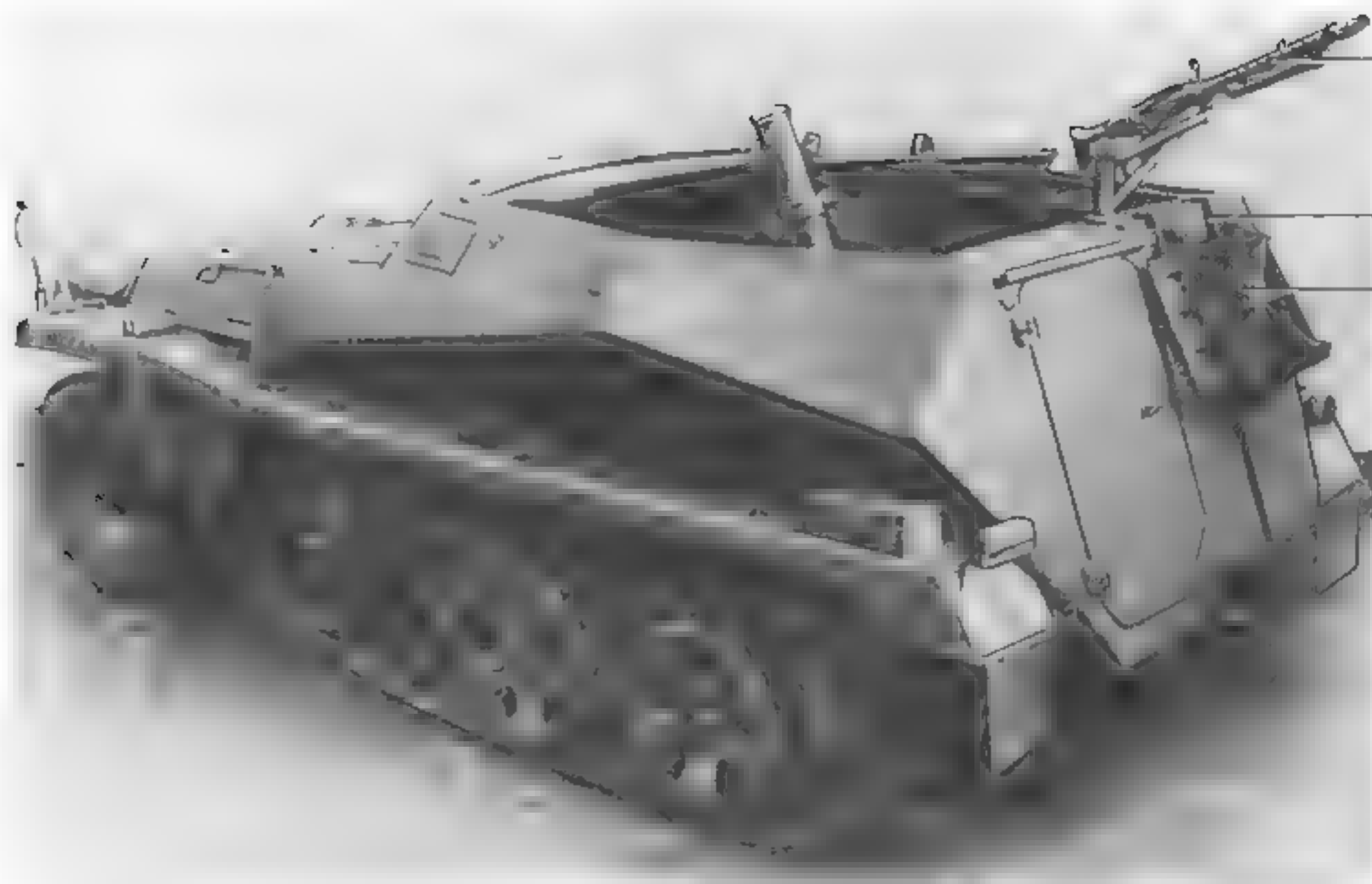


54cm Moerser (Geraet 041)



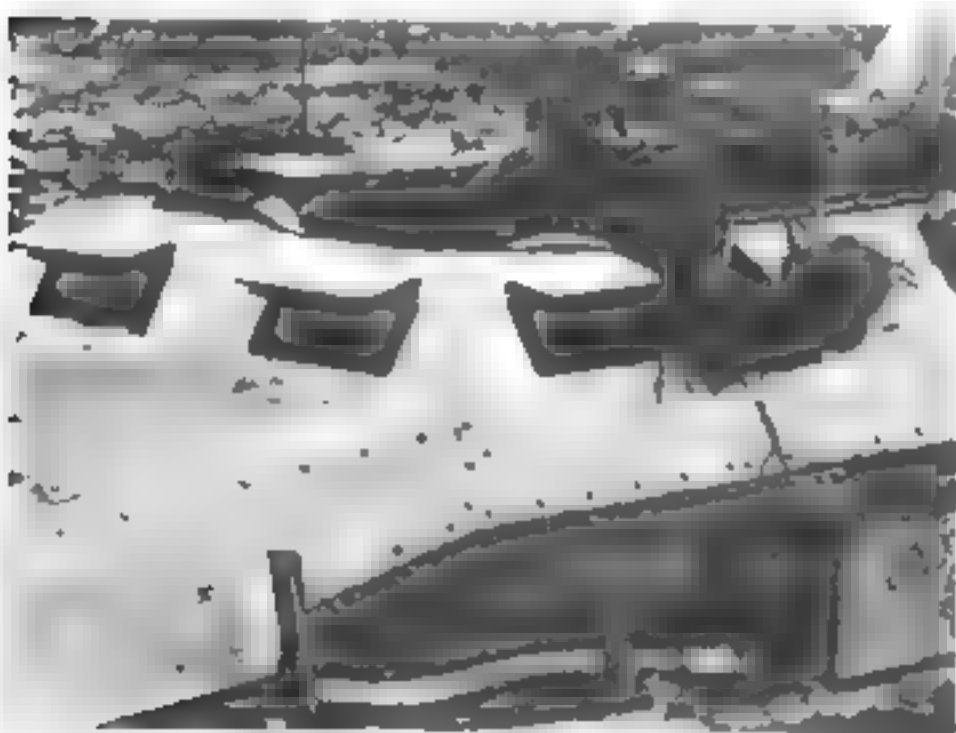
Munitionspanzer IV loading 54cm shell on to Geraet 041 loading tray

Mobile Mortars



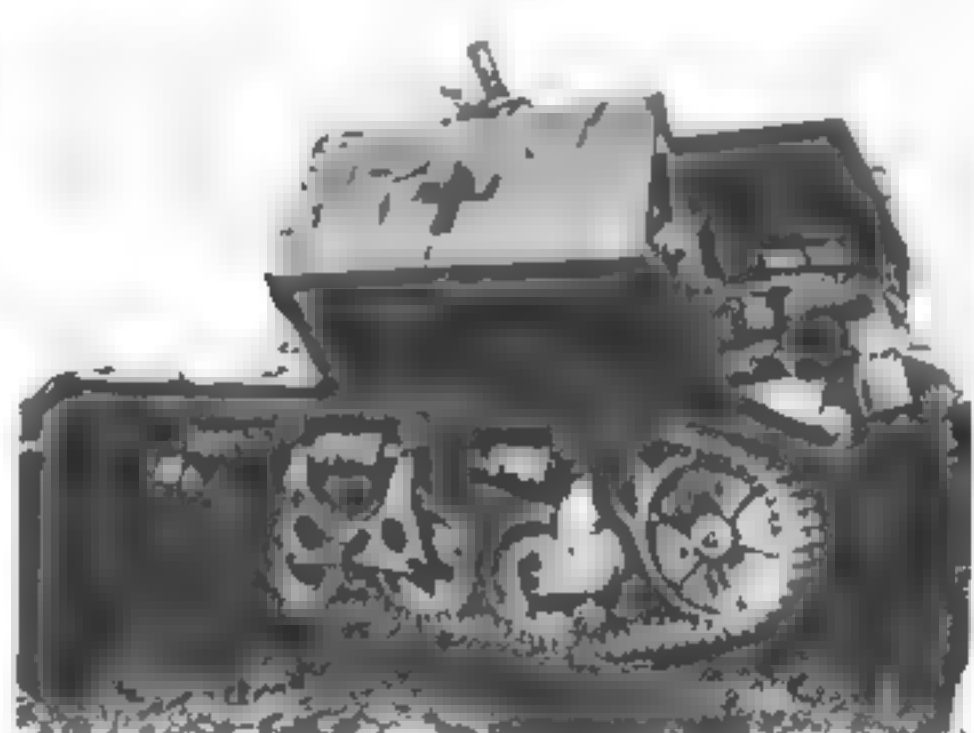
SdKfz 250 7.8cm GrW Wagen (Granutewerferwagen)

The 7.8cm GrW was mounted on the SdKfz 250 half-track. In this case the mount used was the one used on the SdKfz 250 7.8cm GrW Wagen. The mortar was mounted on the rear of the vehicle. The mortar was mounted on the rear of the vehicle.



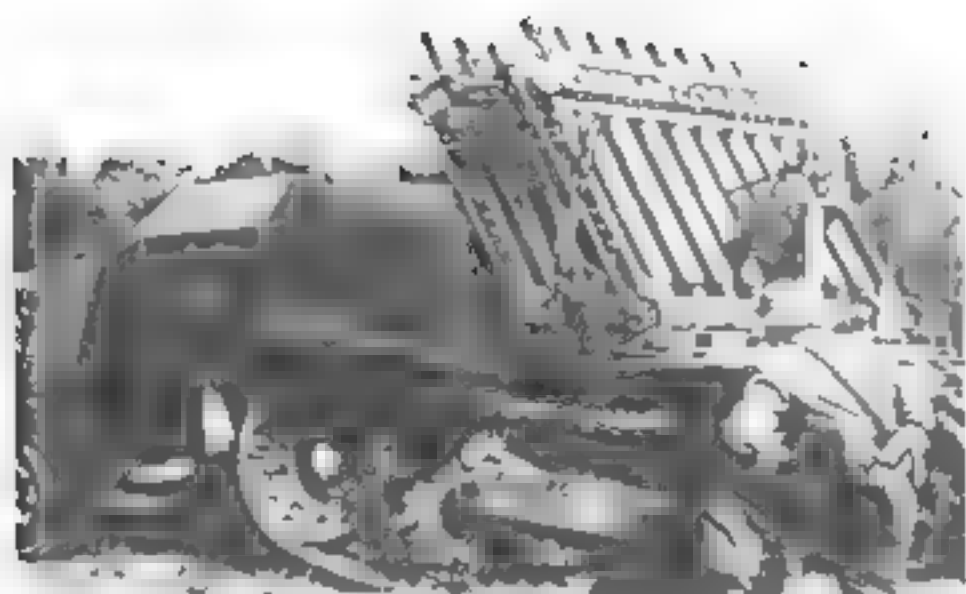
**SdKfz 251 2 mSchütz PzWg (GrW)
or Mittlerer Schuetzenpanzerwagen (Granutewerfer)**

The 2 mSchütz PzWg was modified to carry the 7.8cm GrW. The mortar was mounted on the rear of the vehicle. The mortar was mounted on the rear of the vehicle.



**12.8cm Schwerer Granatwerfer 34 auf PzSpWg AMR (f)
or Moersvertraeger AMR (f)**

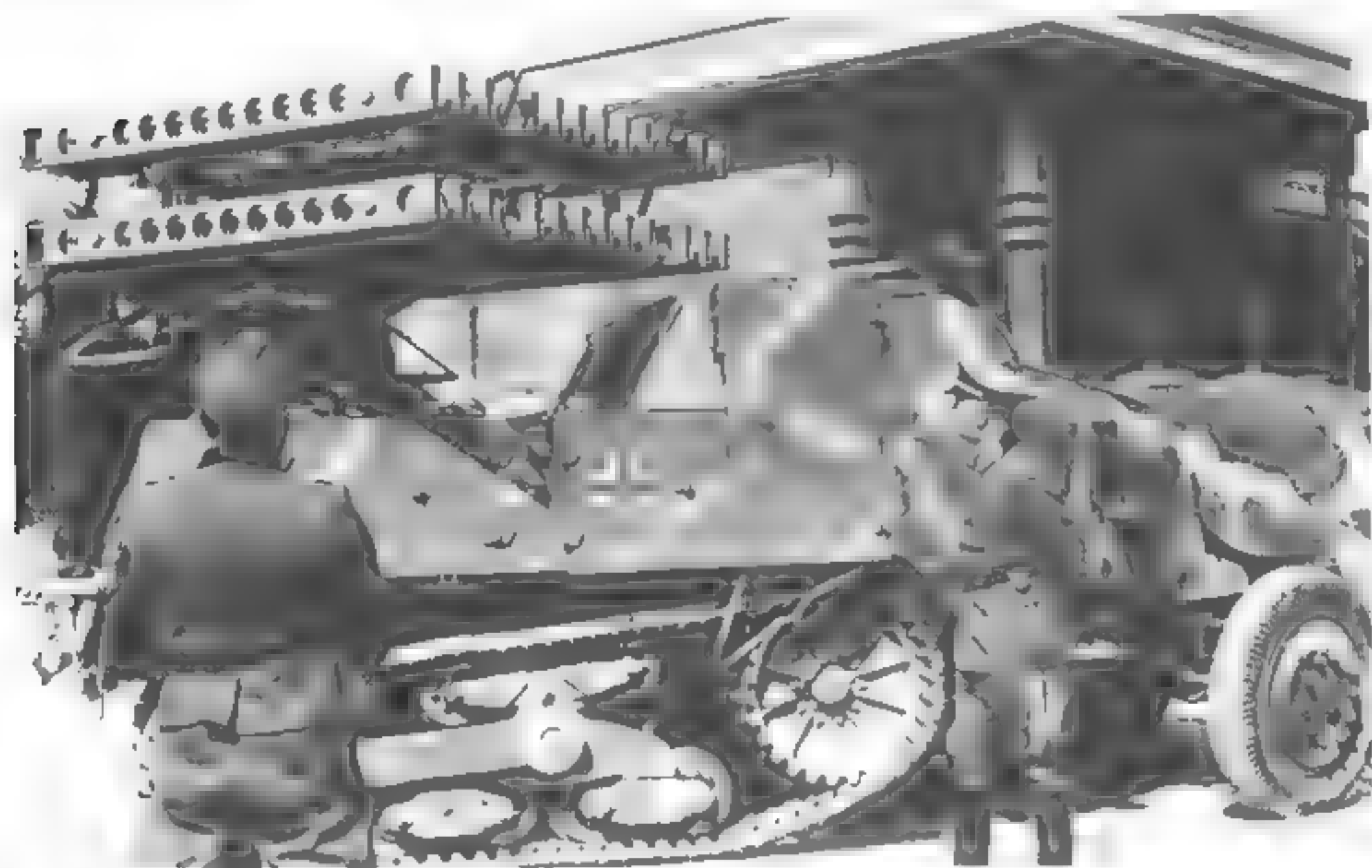
The 12.8cm Schwerer Granatwerfer 34 was mounted on the PzSpWg AMR (f) or Moersvertraeger AMR (f). The mortar was mounted on the rear of the vehicle. The mortar was mounted on the rear of the vehicle.



Mittlerer Schützenpanzerwagen S.30(D) mit Maschinengewehr

Die S.30 ist ein mittlerer Schützenpanzerwagen, der in der ersten Hälfte der 1930er Jahre entwickelt wurde. Er ist ein Kettenfahrzeug mit einer Länge von 10,5 m, einer Breite von 2,5 m und einer Höhe von 2,2 m. Das Gewicht beträgt 10,5 t. Die Höchstgeschwindigkeit liegt bei 40 km/h. Die Reichweite beträgt 150 km. Die Besatzung besteht aus 10 Mann. Die Bewaffnung besteht aus einem 20-mm-Kanonenpanzerabwehrkanonen (PaK) und einem 7,92-mm-Maschinengewehr (MG).

Rocket Projectors

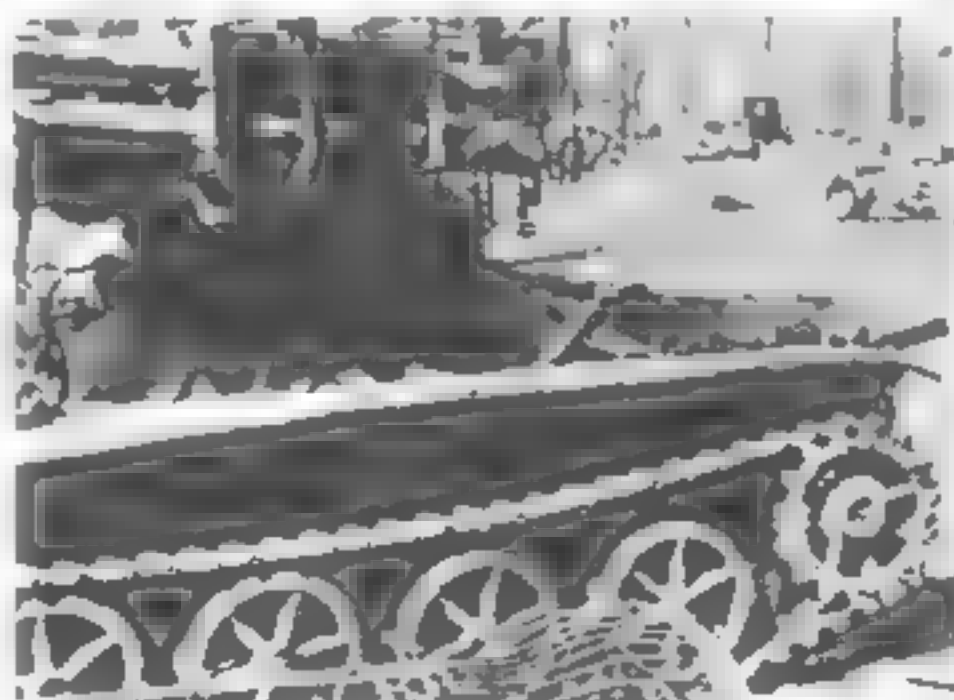


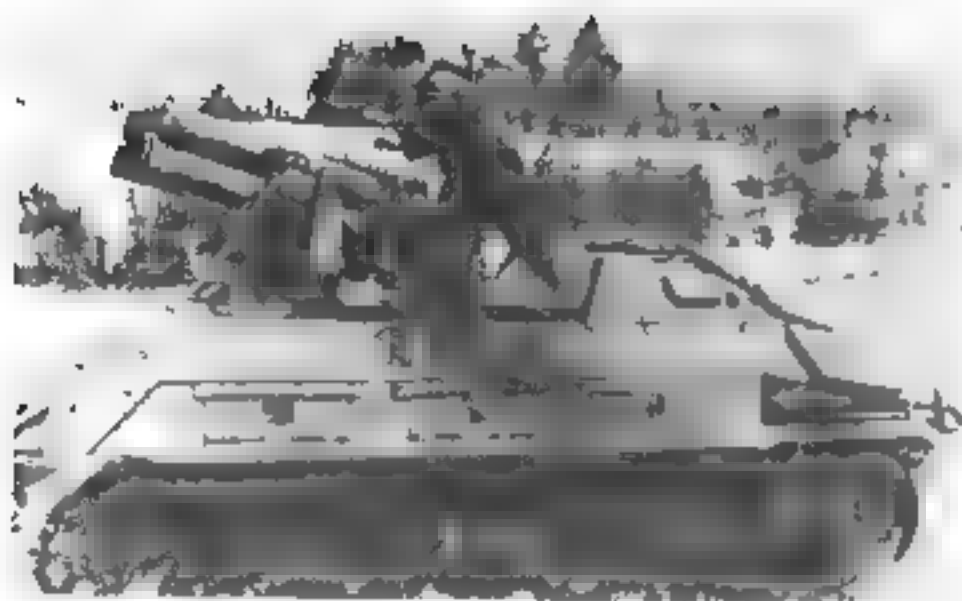
8cm R-Vierfachwerfer auf gep. Munitionswagen S.30(D)

Der 8cm R-Vierfachwerfer ist ein Raketenwerfer, der auf einem gepanzerten Munitionswagen S.30(D) montiert ist. Er ist ein Kettenfahrzeug mit einer Länge von 10,5 m, einer Breite von 2,5 m und einer Höhe von 2,2 m. Das Gewicht beträgt 10,5 t. Die Höchstgeschwindigkeit liegt bei 40 km/h. Die Reichweite beträgt 150 km. Die Besatzung besteht aus 10 Mann. Die Bewaffnung besteht aus vier 8cm-Raketen.

Kleinpanzer Wagne

Die Kleinpanzer Wagne sind kleine, leichtere Panzerfahrzeuge, die in der ersten Hälfte der 1930er Jahre entwickelt wurden. Sie sind Kettenfahrzeuge mit einer Länge von 6,5 m, einer Breite von 2,5 m und einer Höhe von 2,2 m. Das Gewicht beträgt 6,5 t. Die Höchstgeschwindigkeit liegt bei 40 km/h. Die Reichweite beträgt 150 km. Die Besatzung besteht aus 10 Mann. Die Bewaffnung besteht aus einem 20-mm-Kanonenpanzerabwehrkanonen (PaK) und einem 7,92-mm-Maschinengewehr (MG).

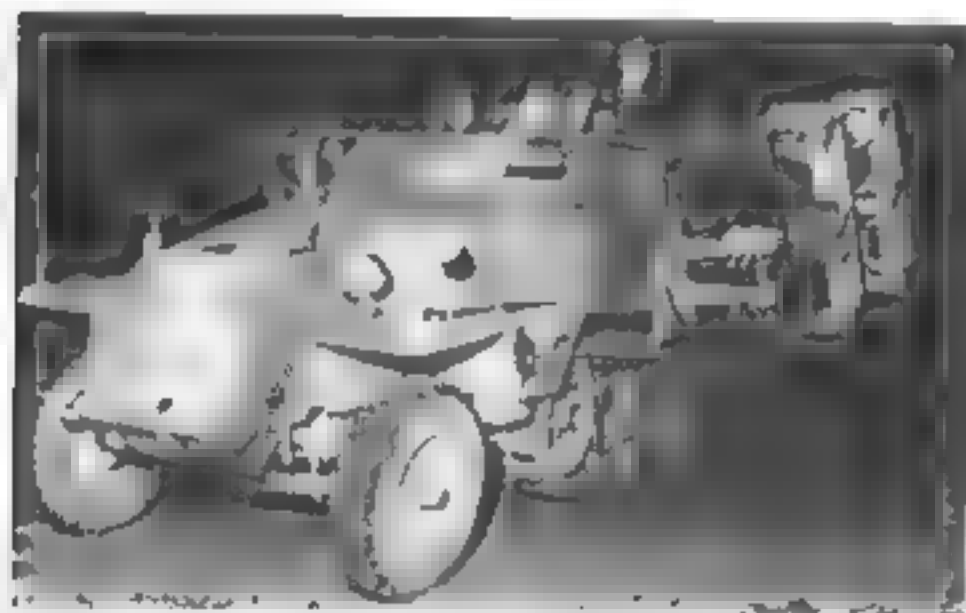




15cm Panzerwerfer 42 auf 'Maultier' (Opel) SdKfz 4 I
 Rocket projectors were introduced in 1940 for laying heavy smoke and high explosive on target areas. The projector equipment being mounted on a two-ton Opel SdKfz 4. To increase the mobility and rate of fire of these projectors, they were mounted on a converted semi-track vehicle.
 The mobile mount used for this conversion was the 2-ton Opel SdKfz 4 Type S, SSM that had been fitted with a light armoured body. The projectors in two horizontal rows of five were mounted at the rear of the vehicle on a turntable with a 360 degree traverse. An additional 15cm rocket rounds were carried inside the vehicle. Crew 3. Weight 7.1 tons.

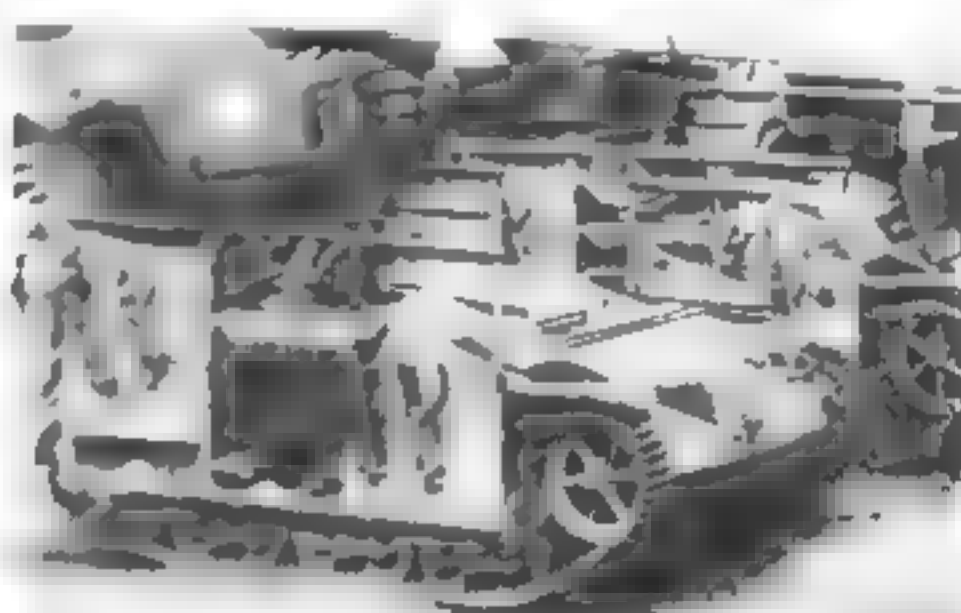


15cm Panzerwerfer 42 (Zehnlings) auf Schwerer Wehrmacht-Schlepper
 Projected in 1942 the construction of this simplified design for a heavy military semi-tracked tractor (SW'S) was personally sanctioned by Hitler for the Infantry Programme to replace the 3-ton semi-tracked vehicle SdKfz 6 which was to be discontinued. The SW'S entered into service late in 1944 and a number of them were converted to self-propelled carriers for the 15cm Nebelwerfer projectors to replace the Maultier. In addition 26 rocket rounds were carried stowed inside the vehicle. Crew 3. Weight 14 tons.



Mittlerer Schützenpanzerwagen mit Wurfrahmen, SdKfz 251 I
 Introduced into service during 1940, this equipment consisted of the standard 3-ton semi-tracked personnel carrier SdKfz 251 equipped with externally mounted pivoting racks for launching the heavy 28 or 32cm rockets. The racks known as the Schweres Wurfrahmen 40 (SW R 40) were attached, three on each side of the vehicle and were designed to fire the rocket from the crate that it was packed in, thereby using the crate as the projector. The pivoting plates within the SW R 40 frames or racks were adjustable for elevations from 5 to 45 degrees and the rockets were aimed by manoeuvre of the vehicle. The rockets were carried in the vehicle. Crew 7.

Bundesarchiv Koblenz



Gepanzerter Munitionsschlepper 1 F(f) mit Wurfrahmen
 or RW auf 1 F(f)
 This was the French Chenillette infantry tractor with four Wurfrahmen 40 mounted, two each side of the vehicle for launching four 28 or 32cm rockets. The method of aiming, mounting and stowage was the same as the Maultier. Crew 2.



Infanterie Schiepper 1 F(f) für 28-32cm Wurfrahmen
 This version of the rocket launching Chenillette carried the crated 28-32cm rockets on a raised metal platform that had been constructed over the stowage bin at the rear of the vehicle. The platform was hinged to obtain elevation and the method of aiming was the same as its counterpart.
 A close-up of the sighting vane is shown in the picture of this vehicle which is being inspected by Field Marshal Rommel (centre of the group). (Bundesarchiv Koblenz)



28/32cm Wurffrahmen auf PzKpfw 35H(D)

The rocket launching equipment on this vehicle, a French Hotchkiss H35, was a modified device and consisted of a frame with two metal projectors bolted to movable plates, one frame being attached to each side of the vehicle. The projectors were shaped to the contours of the 28/32cm rockets and were designed as permanent launchers, additional rocket rounds being carried by a munitions vehicle.

Elevation of the launchers was achieved with the movable plates, the rockets being aimed by manoeuvre of the vehicle. (Bundesarchiv Koblenz)

28cm rocket launched from Hotchkiss H35. UE Chenille with 28/32cm crated rockets is on the left. (Bundesarchiv Koblenz)



Flame Throwers



This view shows the 1.4cm projector on the right side of the vehicle in action against a target. This vehicle is a late production model without the portable equipment. (Bundesarchiv, Koblenz)

Flammpanzer I

A number of Panzerkampfwagen I Ausf. A were converted in the field by the Afrika Korps to the role of flame-throwers. The machine gun in the right of the turret was removed and replaced by a projector of a light infantry flame-thrower Model 40. The cylinders containing the flame-fuel and compressed air were installed inside the turret.

Mittlerer Flammpanzerwagen, SdKfz 251/16 or m Flamm PzWg

Introduced in 1942, this was the 3-ton semi-tracked armored personnel carrier SdKfz 251 equipped with flame-throwing weapons. Two 1.4cm flame-projectors protected by armored V-shaped shields were mounted at the rear, on either side of the vehicle, and could be traversed 160 degrees.

A 154 gallon flame-fuel tank was fitted against the rear inner side of the vehicle and was sufficient for 80 bursts of 1 to 2 seconds at a range of 40 to 50 yards.

A portable 7mm flame-projector for use with a dismounted crewman against difficult targets was also carried. When in use the portable equipment was connected to the vehicle's flame-fuel tank by a 33 ft hose pipe. This equipment was dispensed with on later production models of the SdKfz 251/16. Crew 4. Weight 8 tons.





PzKpfw II (F) SdKfz 122

This equipment was a conversion of the Panzerkampfwagen II Ausf. D and E to the role of a flame-throwing tank, production of which began in 1940. Two remote controlled armoured turrets containing the flame projectors were mounted on the front of each track guard. These projectors with a range of 35 yards and a traverse of 180 degrees were controlled by the tank commander.

Each projector was supplied separately with flame fuel from a 35 gallon armoured tank carried externally on the track guards. At the rear of each fuel container was mounted a triple smoke generator discharger. Crew 3, Weight 11 tons.



Panzerkampfwagen III (F) SdKfz 141/3 or Flammpanzer III

Produced from 1942, this vehicle was the basic Ausf. L or M of the the Panzer III series converted to a flame-throwing tank. The flame-projector was contained inside a steel tube about 5 ft long and was mounted co-axially in the turret with a machine gun replacing the normal 5cm gun. A total of 225 gallons of flame-fuel was carried internally, being contained in two tanks within the hull. This enabled the projector to give 70 to 80 flame jets of 2-3 seconds at ranges of up to 65 yards maximum. Crew 3, Weight 23 tons.



Flammpanzer 38(t)

Produced in late 1944, the flame-projector was mounted on the offside front of a Panzerjäger 38(t) replacing the 7.5cm Pak 39. Two tanks containing 154 gallons of flame-fuel were carried internally. The range of the projector was 55 to 66 yards.

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PzKpfw B1 Bis(t) Flamm

Twenty-four French Char B1 Bis heavy tanks were converted during 1943 to flame-throwing tanks. A flame-projector was installed in the front of the hull replacing the 75mm gun and the tank for the flame-fuel was placed at the rear of the vehicle within an armoured housing. Crew 4, Weight 34 tons.



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(Chars 2C, D and B)

by Major James Bingham, Royal Tank Regiment

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(including R 35 and FCM 36)

by Major James Bingham

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